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ARTICLE VII.

ON THE

PRACTICAL METHODS

OF

VENTILATING BUILDINGS.

BY LUTHER V. BELL, M.D., LL.D.,

FELLOW OF THE SOCIETY.

Read at the Annual Meeting, May 31, 1848.

Mr. President and Gentlemen,

On this anniversary occasion, when so large a proportion of the almost thousand associated members of the medical profession of this ancient Commonwealth, has come up to this metropolis, for the mingled purposes of fellowship, of festivity, and of such instructive suggestion, as "the hour and the man" may furnish, — upon me has fallen the honorable duty of providing some topic for your reflections, and leading your thoughts in the direction of some not unprofitable, nor useless, inquiry.

It is but once in the reach of a single individual's whole life, however prolonged, that to him can be expected to fall the high privilege, the

profound responsibility, of having his living voice touch the living ear of the assembled profession of a great commonwealth. I feel that the highest ambition which fills my mind in this office, as well as the strongest manifestation of respect to the character, attainments, and tastes of an audience like this, is, that every sentence uttered should contain a fact, — a useful, available, practical fact, — or some just, candid, reasonable deduction from an undoubted basis. Willingly would be foregone all the honors and applause which the most successful literary or rhetorical effort could elicit from a gratified, but unprofited audience, could I but feel that you, or that great community of which you are, in some measure, the representatives, as well as the protectors, may not be unbenefited by my well-intended service.

In accordance with these impressions of what is due to this Society, — to this occasion, — I have selected as the topic of my address, the directly practical or mechanical applications of the science of ventilation, or rather the division of it which has been termed by writers *internal* ventilation, as contra-distinguished from *external*, in the scope of which latter is comprised the means by which towns, cities, or even large territorial districts, are rendered more salubrious, as respects the atmosphere, and its contents, appreciable or subtle.

Under the term, ventilation, philologically not very accurate or comprehensive, is intended that science, with its connected arts, formed by contri-

butions from almost all the other natural sciences, physiology, chemistry, pneumatics, mechanics, and others, through the agency of which, adequate, perfect, and certain supplies of pure atmospheric air are furnished and continued, under ascertained conditions of heat, moisture, and motion, in edifices or apartments in which the air would become vitiated and destroyed, by respiration, combustion, or other oxygen-removing processes, or made unhealthful or disagreeable by admixtures of suspended or combined foreign matters.

Under recent advances in this science, a true ventilation is designed, also, to comprehend the acoustic relations of the air, as well as its more palpable and material admixtures.

At first thought, it may appear somewhat fastidious, or even unphilosophical, to regard merely unwelcome sounds, recognized by the ear alone, in the light of offensive impurities, or rather as disagreeable additions to the medium in which we live and intercommunicate, yet no explanation will be needed by a body of medical practitioners, residing, in part, in large towns and cities, for considering the means of averting, or obviating, the annoyances and injurious irritations of painful sounds, in the same category with the disagreeably offensive, or actually malarious contaminations.

The physician in the densely populated and industrial community, must have often recognized the discomforts and serious injury from the former, to the patient on the bed of sickness, with keener

regret, than the noisome or pestilential emanations of the air, as less susceptible of being counteracted or nullified by ingenuity and care.

It is a gratifying coincidence, which will most fully develope itself as the various modifications of the ventilating system are brought forward, that the improvements which have so fully satisfied the requirements of health and comfort, as respects respiration and purity to the senses, also meet the necessities of the ear. We shall see that under the complete arrangements for atmospheric supplies, secured in modern provisions, this rather more remote requirement is completely fulfilled,— a necessity of the highest moment, as regards that somewhat extensive class of edifices, assembly rooms and halls, in which distinct and easy elocution, or the completest delivery and reception of musical sounds and literary compositions, are the principal desiderata.

Under the aids of *forced* ventilation, or that in which an independent motive power is relied upon, all varieties of system require, as a condition of their full effect, the avoidance of any direct communication with the outside air, by the closure of all windows or openings, which might admit foreign, or confuse designed vibrations. Hence, the purest efforts of speech and music are transmitted to the audience, unmutilated and unmixed, and with the least labor and pain on the part of the vocal performer. The most refined enjoyments of the musical art, the most persuasive and overpow-

ering effects of eloquence, and the full weight of instructive attempts, thus unite their claims for consideration, in this useful science, as well as the more immediate and pressing demands of body and mind, for exemption from disease, prolongation of days, and the highest intellectual and moral exercises.

It has been customary with every writer and teacher on ventilation, to commence his labors with a more or less thorough elucidation of the chemistry of respiration, and the other physiological relations of that all-essential process of the animal economy. That these are immensely consequential, no one would think of doubting, and well worth all the laborious experimenting and research which they have so long and so faithfully received. The very fact, that a half of the machinery of the human body, measured either by its capacity or its complexity, is devoted to the function of ventilating the blood, by processes essentially mechanical and chemical, demonstrates the rôle which the air plays in the support of life, and can hardly be overestimated. But, believing with Mr. Brande, and other distinguished philosophers, that neither chemistry nor physiology can afford us much direct aid in determining the quantity or conditions of air needed for the uses of men in habitations, — that, like food or clothing, it is a practical question, to be solved only by experience, I do not propose to dwell upon these indirect subjects, already so well understood by the profession, and upon which the

fullest and most trustworthy authorities are accessible at every hand.

Indeed, it seems to me, that the experimental investigations which are to aid us in applying results to useful purposes of existence, are only those in which, (to use the words of Dr. Reid,) men in bodies and aggregations are regarded in the light of matters for chemical examinations and trials, while their habitations, from palaces to prisons, are the pieces of apparatus, in which the analyses of results are to be wrought out, by patient and oft-repeated tests.

Nor do I intend to open to any considerable extent, the pathological considerations, — the character and causation of the multiform diseases, connected with that deterioration of the medium of life, which it is the object of ventilation to prevent and to cure. This connection has grown into an importance, under "this new era of sanatory reform," as it has been so well called, its bearings have been so fully studied, that to do adequate justice to its claims, the original evidences from the experience of the old world, must be examined by volumes, not in abstracts.

An able writer on Military Engineering, observes in relation to his art, that facts, which are the deductions of long and tried usage, hold in many instances, the place of principles. This axiom appears equally applicable to the practice of ventilation. An art made up of the contributions of so many departments of knowledge, involving so many difficulties in these combinations, and subject to so

many modifications, almost as numerous, in fact, as the individual examples, can be safely grounded only on experience. Perhaps in no other instance of the application of science to the arts of life, has it been found so unsafe to act from pure scientific deduction, or where trial would more annoyingly demonstrate, how widely fluids, whether gaseous, or liquid, act in practical usage, from what they seem bound to do, in legitimate accordance with theory.

I would not be thought to undervalue an abstract knowledge of the sciences, involved in the theory of this art, but only require that the practical application should be studied and determined, rather in the light of antecedent successful and abortive trials, than on any a priori reasoning.

Sir Humphry Davy, in the zenith of his fame as a chemical philosopher, utterly failed in ventilating a single assembly room, under the most favorable circumstances. Men of infinitely lower attainments, profiting by a long series of examples of all grades of perfection, are now able to succeed under the most complicated and embarrassing difficulties.

The means of ventilating buildings have been brought to their present advanced and successful state in Europe, rather by successive steps — by a gradual gain of new points upon old, than by new discoveries or inventions. In this mode, will the art go on to a still higher grade of completeness, and hence the necessity of a thorough understanding of what has been done, to avoid the repetition of ex-

periments, which may have been tried and have failed again and again. Viewing our object in this strictly practical light, and believing from its very nature, that no marked novelty can ever be expected to replace all that has already been attained, as it is not unfrequently the case, in certain mechanical ends, I propose, as the most practical and available method to aid a community like ours, in search of this auxiliary to health and comfort, to bring forward, and briefly explain the plans which have stood the test of adequate trial, in various countries, and under various conditions of climate and occasion. From these will then be separated the points and principles which appear to be ever present and essential. The way will thus be opened for the means of judging of the relative value of the modes of bringing about satisfactory results, which are found to be constant, and the circumstances which determine an election of individual varieties, among the many ways of accomplishing the same end.

I am aware that the suggestion, that there is no well founded reason to believe that any of the modern improvements in ventilating are to be considered in the rank of new discoveries, will strike many persons, who have only read the books of certain claimants of original methods, as indicating an uncharitable disposition to detract from the merits or honors of origination. A disinterested investigator, removed from the influences of national, partisan, or personal partialities, I cannot but think, on fair adjudication, will feel full confidence, that the ad-

vanced specimens of modern ventilation are due only to the unbounded opportunities of carrying out well recognized ideas of long standing. Dr. Reid's plans, which doubtless have been regarded as new, by those deriving their sole information from newspaper paragraphs, or critical reviews, will be found, when fairly analyzed, only the fruit of well understood principles, applied with very advantage of mechanical skill, and unlimited expense, occasionally carried to an extreme of refinement, fastidious and finical.

Any one who will run over the annals of science, can go back to the very fountains of medicine for the earliest recognition of the importance, and indeed, for some of the practical methods of this department of hygienic and sanatery protection. Moses appears to have comprehended the nature and importance of external ventilation, as shown in the geometrical and systematically arranged encampments of the children of Israel. Two thousand years ago, Hippocrates treated of the value of a pure atmosphere, its influence on life and disease, and laid down rules for securing this object, with a clearness and truth, which demonstrated that his wonderful tact and observation, so many centuries before the constitution of the atmosphere, or the chemistry of respiration were dreamed of, had given him the most correct and practical notions of its importance.

Celsus, in his instructions as to the treatment of fevers, directs the air of the patient's room to be pu-

rified by a fire lighted in a fire-place — involving the same principle of rarefaction as Dr. Reid's Parliamentary ventilation. Agricola, in the sixteenth century, appears not only to have recognized the necessity of introducing pure supplies of air artificially, but has suggested, or at least recorded for our instruction, the very means for producing an upward current of vitiated air, by fire applied to the exterior of a metallic tube, through which the air was thus speeded by diminished gravity and partial vacuum, long after adopted by Davy, and, as we shall have occasion to observe, forming the basis on which various commissions in modern times, have ventilated the most important public edifices.

The real constitution of the atmosphere, we know, was a mystery, until analyzed and its action on the system developed, by Priestly, Scheele, Black, Lavoisier and Davy, and that brilliant galaxy of chemists and physiologists, which flourished towards the beginning of the present century. But its mechanical properties, and its practical relations to health and life, were as well understood and as well applied half a century before. In 1727, Dr. Desaguliers, and soon after Dr. Hales applied pumps, and in years subsequent, centrifugal wheels or fans, and flues urged by fires, directly or collaterally. In fact, most of the means, which ingenious men manipulating with a fluid, the mechanical properties of which were perfectly understood by them, would naturally adopt, were actually introduced to accomplish movements and results, which were alike manifest to them. Pris-

ons, shops, and legislative halls, hulks and hospitals of all kinds, were provided with apparatus to give them pure and healthy air, and our present plans are but little more than the ruder schemes of the old, and quaint projectors and philosophers, verified under circumstances of more enlightened society and wider means.* Many of these enthusiasts in ventilation only lived before their day, and it is truly painful to read, that men, the correctness of whose ideas in science, and the elevation of whose philanthropy entitled them to respectful gratitude, were obliged to dance a fruitless attendance, on sneering and ignorant functionaries of government, or even had plans, which in principle were equal to those now in successful use in our best examples, turned into ridicule and rejected, by the mischievous interference of the mere menials whose tempers or whose interests were not suited.†

I am prepared to assert, after a diligent recurrence to the original accounts of these men, that the essential points of all modern contrivances, except the single one of producing an exhaustion by the admission of a jet of steam, were all anticipated in their writings. No man of our own age, in my opinion, can sustain any higher claims to original suggestion, as regards internal ventilation, than should be accorded to ingenious and well matured

* Fig. 1, Pl. 1, represents a method of exhausting air from mines, copied from a drawing in the Phil. Trans. for 1665. The fire in the grate produces a current through the box, *b*, connected with the mine.

† See Desagulier's Philosophy, vol. II. p. 561. Fig. 3, of the same plate, represents the system invented by Mr. Sutton, an eminent brewer in London, and much employed about the same period. The foul air flues from the hold, were admitted under a ship's coppers, or other fire.

adaptation, more completeness of detail and higher refinement of results.

The English, since 1835, in consequence of the destruction, by fire, of their House of Commons, and the determination to construct a national palace for the Legislative Representatives of the kingdom, on a scale of magnificence and completeness, unapproached in modern architecture, have devoted, under the patronage of Government, and the impulse which a general turning of attention to a subject of universal utility would naturally give, a great amount of research and ingenuity to the means of ventilation of all kinds of habitations of men, on land and water. The accounts of many of the most complete of these undertakings, drawn up with the utmost minuteness of detail, and the record of their operations verified with mathematical certainty, are before the world. Their worth as contributions to the cause of science and philanthropy, is not to be undervalued, yet it is not to be concealed that, thus far, there is no evidence that the British attempts have proved more advanced in science or success, than those reached by their neighbors across the Channel, under the guidance of Gay-Lussac, Thenard, and others, who have pursued their investigations and applied their results, in that quiet and unobtrusive, yet thorough research, which so eminently characterises the labors of the French *savans* in every field of scientific pursuit.

While the opinion is thus confidently offered, that no great or original discovery can be justly

asserted in modern ventilation, a denial which detracts little or nothing from the honorable claims of those, whose skilful adaptations are as useful as if they had the element of originality in them, it is humiliating to be obliged to confess that our own country stands lamentably in the back-ground, in this important provision. It would be difficult, if not impossible, to point out half a dozen specimens of buildings, ventilated in accordance with the full application of principles, tested elsewhere successfully for years, although it must be accorded that in view of our climate, our habits of life, our great disposition (beyond example) to constant and protracted accumulation of numbers, for purposes of business, instruction or amusement, by night and day, no community in the civilized world, more really and urgently requires the aid of the ventilating art, so far as regards its important ends of comfort and health.

Our common school system, in which minds and bodies are moulded at the plastic period of life into forms to be retained, and I may say without trenching on the domain of new theories or speculations, perpetuated, offers a more urgent appeal for attention, than can be imagined in any old world institutions.

We, too, are becoming rapidly a manufacturing people, to follow in the awful footsteps of our prototypes, the world over, unless we can do that most difficult of moral feats, profit by the unfelt experience of preceding races. We are doing what

the world has no historical parallel of, in building towns and cities. A few men of giant energies, of boundless faith, of far-seeing calculation, sit down in the counting-rooms of this city, with a surveyor's sketch, and a few engineers' levels. They decide that a town shall be built — a manufacturing city erected. Straightway, and almost like the falling, opening, raising, changing scenes of the theatre, huge brick palaces arise, streets in long perspective of shops, schools, houses, side-walks, begin to stretch themselves out from a thousand nuclei, to meet the new formed elements in exact symmetry, like the points of ossification in the growing embryo. Churches point their spires to the skies, in all the beauty of Gothic tracery, or plant their firm columns of stone, in all the solidity of Grecian art. In short, what the conquerors of the world have been lives and centuries in designing and accomplishing, is called into existence by our merchant princes, almost with the wave of Prospero's wand!

Would that the same prophetic and far-seeing vision, which pierces so clearly into the distant future, as to warrant these unbounded outlays, — the same forecast, which casts its bread upon the waters with so lavish a hand, in the confident expectation of a bountiful return — which boldly cuts down hills and fills up vallies to accommodate the hundred thousand inhabitants, presenting themselves in the misty future, while the grass is still green in the projected avenues, — would that it could, at the same time, foresee and prevent, the

disease, the death, the misery, the moral, social, as well as political ills, which appear, upon the best of evidence, to go hand in hand with neglect of plain sanatory precautions, — and realize the illustrations unnumbered from experience past, which tell with demonstrative certainty, that moral and social degradation are indissolubly linked with disobedience of nature's laws.

I blame not these founders of cities, that they have paid but little regard to hygienic and sanotary measures. It is glory enough to build cities, — it is too much to expect the same minds which can grasp all the elements essential to these great undertakings, in a commercial point of view, should comprehend all the mysteries of typhus, struma, or contagion, and the relation of these to ventilation, sewerage, and water supply. It is for our profession to step in at this point, and to guard the rights of generations yet unborn, in these respects, and the wise interest, the sagacious foresight, the honorable ambition for unmixed success, will guarantee the co-operation of the builders of cities, whenever they are convinced of the reality of the evils, and that they are susceptible of prevention and relief.

The "ghastly bills of mortality," as they have been termed by an English statistician, (under some overlooked or mistaken modifying circumstances perhaps,) of one of our new cities, the prevailing impression of the unhealthfulness already of our lately populated manufacturing towns, call aloud

to the medical profession to look at the growing evils of hygienic neglect, full in the face, and if they require a plenary and decided remedy, however costly, it will not be long in being found.

It might not be out of place, were it of any probable utility, to inquire into the causes of this want of advance generally, in an art so universally admitted, in language, to be important. We scarcely ever read the description of a new assembly room, or theatre, or hospital, or penitentiary, in which we do not find laudatory and congratulatory notices of the excellent provision for ventilation. This provision, of course, in ninety-nine cases out of a hundred, is nothing more than some small holes left in the ceiling, the inefficiency of which has been notorious for a hundred years. Still such a general recognition is sufficient to prove a general necessity.

Our inefficiency cannot be from want of acquaintance with what has been done in other countries, more advanced in the arts of living, since the books detailing the necessities and the modes of meeting them, in the most authoritative manner of investigation, are known to every scientific inquirer, and are to be found in every considerable library.* We must rather ascribe our backwardness to the same general causes, which have kept architecture, both as a useful and an ornamental art, at so low an ebb, throughout our country. One of these is, that

* Appendix D.

for the moderate capital we have to devote to such purposes, we have an undue desire, a morbid ambition to produce more of splendor and show, than is compatible with permanence, completeness of interior arrangements, or regard to hygienic considerations. Anything out of sight, like the deep and enduring concrete foundation, the inverted arches of support, designed to meet the possible failures of succeeding centuries, or the concealed arrangements needful for a thorough and universal ventilation, which must commence almost at the corner stone and be kept in continuous design until the last finish, would be struck out, in a vast majority of instances, from the architect's specification, (if he dared to suggest them,) as an expense which might be saved without being felt. On the other hand, the dome, the spire, the columns, the pilasters and balconies, some of which, as mere ornamental appendages, could be added at any time, now or a century hence when funds might be more abundant, or never, would be adhered to as essentials, as indispensable.

Despite the science and mature experience of a thousand European attempts, fully and exactly detailed in the unmistakable language of description and pictorial representation, our Building Committees would assuredly, after making their personal inquiries among the hundred interested patentees or dealers in new furnaces, chimney-tops, revolving turn-caps, and the like, conclude that, amongst so many *practical men*, promising in their

advertisements and circulars, so many cheap and effectual methods of doing that which the old world artists consider so difficult and expensive, some ready measures would turn up, when their part of the duty was finished.

The most costly edifice in the northern states, just finished with eternal granite, on foundations based in the ocean, at a cost of a million of dollars, is an illustration, an abundance more of which could be easily adduced, were not the task an invidious one. Proposals for heating and ventilating were advertised for, after the building was finished!

I would not, however, be understood to criticise, with undue severity, an unacquaintance or neglect, for which our profession would certainly be obliged to assume a fair proportion of the responsibility. It is to be considered, that ventilation, however appreciated by the scientific, is only gradually forcing itself into the notice of ordinary minds, to whose practical experience a predominating weight of deference must naturally be paid in a new country. We have yet scarcely a class of architects, whose character or attainments are sufficiently acknowledged, to allow their judgment and taste to overrule the occasionally absurd phantasies, or conceited presumption of Building Committee majorities.

A new country, engaged in burning up the original forest as rapidly as possible, in laying deep the basis of civil and political institutions, in taking care of things indispensable to actual existence,

cannot be expected to provide for all present — much less future and contingent evils. Had those who laid out the three-mountain city, by taking the cow-paths, or no more positive indications, as their guiding lines, seen that in a couple of centuries it was to be a great metropolis, yielding all the moral and social good and evil of a great city, how widely different would have been the expanse of their views, and the modes of applying them in practice!

Could those now on the stage, see the hundred and fifty thousand of the population of it, and its suburbs, quadrupled in a hundred years, how much ought they to learn by the present condition of analogous cities of the old world. What has been will be; and we can read no plainer augury of what we are to be socially, and municipally, than to apply the lessons presented by our mother country. Sir Christopher Wren, after the ground was all laid open in London by the great fire of 1666, matured and delineated a plan, lately rescued from oblivion and published, by which that city was to be constructed, as regards the great provision of pure air to its inhabitants, so as to secure its healthfulness to all future time. Could the citizens then on the stage, have had that faith, which now seems to have been so obviously irresistible, what myriads of lives, what a boundless extent of disease, moral wretchedness and misery, would have been saved! Yet in New England, we see thousands of houses constructed on the marine marsh, with scarce an inter-

vening yard of gravel, perhaps not a foot, between highly finished and furnished mansions, and that awful quagmire of decomposing animal and vegetable remains, the emanations of the pestiferous gases from which, penetrate the closest interior, and leave the stain of their chemical action upon the valuables contained — still more is it to be dreaded upon the bright faces and active lungs of the youthful inmates, called into existence, in habitations suspended over this sea of corruption!

Besides these natural obstacles to sanatory provision in a new country, we have undoubtedly indulged the fallacious hope or impression, that our peculiar climate, or abundance of space, would save us from the consequences of those violations of sanatory laws, elsewhere followed by the direst penalties; and as every new settlement is pronounced salubrious, until disease and death afford undeniable proof to the contrary, so we have waited to have an overpowering weight of unequivocal evidence of the injurious influences of neglected ventilation, before it is deemed worth while to act. These evidences have been slow and gradual in coming. Our cities have not been much compressed with living masses, our penitentiaries, almshouses, and hospitals, have been too few and on too small a scale, to present the lesson so as to be clearly read. Manufacturing establishments, where hundreds are engaged in labor within reach of each others' inhalations, with their crowded boarding houses, in which the operatives are almost piled at night, so that only a few feet of

space separates the lungs of each denizen of a large town, constitute emergencies of but yesterday. Still more, the rapid growth of many of our commercial towns, increasing from hundreds to thousands, as it were, in a night, carrying them, with no intervening space for adaptation and experience, from the rank of mere villages to great cities, has given them no warning, nor led to any protective measures against the physical or moral evils, which are incident to these "great sores on the body politic,"* whether in the new or old world. In short, the call to alleviate and provide for the consequences, necessary and unavoidable, of great accumulations of human beings, poverty, filth, disease, and death, comes at once, without premonition. The imperious necessity, and the skill, intellectual and mechanical, to meet its pressing demands, follow in that slow succession, which leaves thousands of victims in the track.

Our present demand for internal ventilation as a domestic necessity, has also been strongly influenced by the change in the modes of heating, within a few years. The roaring fire-place, built with an open-mouthed immensity of voracity, as if the struggle were to aid in getting rid of the primeval forest, — in which the Roman poet's verse was practically illustrated in every household,

——— ligna super foco,
Largè reponens ;

—has been replaced by furnaces, stoves, air-tights,

* Jefferson.

of all forms and shapes which caprice or ingenuity has invented. The sweeping flood of air, which carried with it, in its course, the most liberal indraughts of the pure breath of heaven, compensating for the abduction so largely of the warmed air itself by the radiated caloric of the blazing pile, has been dammed up, and that almost entirely. The re-respired, roasted, ill-conditioned air of the dwellings even of the rich, is the result of a parsimonious economy, which strangely and absurdly exists as to this, in a thousand instances, where comfort and luxury make no other sacrifices to saving. *Fuel saving* is one of the cardinal virtues, in the housekeeper's creed, while provision saving, or pure water economy, would be scouted as the height of meanness, or uncalled for self-denial.

Be all the circumstances of defective sanatory provision, (of which ventilation is surely one of the most pressing,) what they may, there can be no question that the results of impure air, are upon us, in all the malignity and infection of the old world in degree; and even since we last met, and in our midst, amongst our associates, the Angel of Death has hovered around, sending his fatal shafts to pierce some of the noblest sentinels of our ranks, and warning us, that if we would improve the sad experience of older countries, we may not longer delay our defensive preparations against that most broad spreading missile of destruction, poisoned air.

In that unfortunate over self-estimation, which, happily, is now beginning to be felt and acknow-

ledged as having formed almost one of the characteristics of our national identity, we are accustomed to speak of ourselves as a long-lived people, inhabiting most salubrious climates, and advanced to that grade of civilization and general education, in which the laws of nature were recognised and obeyed, as well as the laws of revelation and of the social compact.

Reposing self-complacently in a presumption of this kind, (unfounded, it is true, as statisticians amply demonstrate, as far as health and vitality are concerned,) we have felt less called upon, than communities conscious of their own deficiencies, to search out and correct any of those prejudicial influences in hygiene, which bear upon the probability of life.

This is not the occasion to examine the important question, how far, as New Englanders, we compare with other communities in life and health. The simple fact that the tables of life probabilities, deduced from the experience of the crowded, poverty oppressed nations of the old world, the victims of so many circumstances, moral and physical, calculated to influence health and shorten existence, are practically found not inapplicable to a New England population, at the present time, casts a most melancholy foreboding upon the prospects of coming generations, when all the health-influencing concomitants, whether of penury or luxury, of a dense population, are added to our already prolific life-abridging influences.

An associate of this Society, Dr. Jarvis, in a report, as Chairman of the Committee of the American Statistical Association, appealing to the Legislature at its last session, for a sanatory survey of the Commonwealth, demonstrates this important fact so conclusively that I cannot forbear to leave the proof on record. *

How wide spread and active one of these life-shortening causes, the daily, hourly inhalation of vitiated air is, may be deduced most conclusively, though from its nature, only generally, from the universal

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* We may be a favored people in many respects; but, in comparison with some other nations, we do not enjoy the highest degree of life.

According to the best calculations, the average longevity of the people of this state is less than in Sweden, France, and some counties of England; and it seems to be less here now than it was in the past generation.

The average age of all who died in Geneva, Switzerland, from

	1814 to 1833,	was	40 years	8	months
Massachusetts from	1842 to 1845,	"	33 "	0	"
" in	1842,	"	34 "	9	"
" "	1843,	"	33 "	10	"
" "	1844,	"	33 "	9	"
" "	1845,	"	30 "	3	"

The average age of all whose deaths are recorded in

Massachusetts, in	1842,	was	34.9 years	9	months
"	1845,	"	30.9 "	3	"
Concord,	1779 to 1808,	"	39.9 "	7	"
"	1809 to 1842,	"	36.9 "	0	"
Dorchester,	1817 to 1829,	"	33.9 "	11	"
"	1830 to 1843,	"	31.9 "	2	"
Boston,	1811 to 1820,	"	27.7 "	3	"
"	1831 to 1840,	"	22.7 "	9	"

The average age of the living,

		was in			
England in	1841,		26 "	7	"
Massachusetts, in	1840,	was	25 "	10	"
United States in	"	"	22 "	8	"
And in the northern states, including New England, New York, Michigan, Wisconsin, and Iowa,			23 "	3	"
In the middle states, south of the above, and north of North Carolina and Tennessee, - - - - -			22 "	0	"
In the states south of the middle, - - - - -			19 "	5	"

experience of men in all places. Numerical facts, collected with cautious observation, and over long periods of time, justify exact conclusions, as respects those bodily conditions, which language is precise enough to specify. Yet how few, how insignificant are those truths on this subject, capable of being exactly recognized and statistically recorded, compared with the infinitely wider spread, more penetrating evils, which can be conveyed only in the words of general impression and personal conviction.

When the laborer is drawn from the well, the vat, or the mine, asphyxiated by immersion in carbonic acid gas, or is smitten with instantaneous death, by the noisome burst of phosphureted or sulphureted hydrogen, or ammoniacal gases of a Parisian sewer, we see an extreme exhibition of this causation, in palpable and undeniable prominence. In the deadly typhus of jails, emigrant ships, or other dwellings of numbers and misery, we can as little doubt the fatal consequences of impure air. When we examine the immense mass of sanatory documents, collected under the Parliamentary inquiries of the British government, detailing the connection between the damp, unventilated lanes and cellars of Liverpool and Manchester, and the prevalence of struma, phthisis, rachitis, fevers of all types of malignity, from simple ephemera to deadly typhus; in fact, of almost every form of acute or chronic diseases, which constitute the great outlets of human life,

we recognize an equally unbroken link in the chain of cause and effect, antecedent and consequent.

The experience of the celebrated Black-hole at Calcutta, in which one hundred and forty-six persons were confined over night, within a space of about five thousand cubic feet, showed the singular fact, that the deaths of all but twenty-three from immediate suffocation, were not more directly the result of vitiated air, than that of most of the survivors within a few weeks after, of putrid fever.

Dr. Southwood Smith, in his testimony before the Commission for inquiry into the state of large towns and populous districts, observes, that it is no exaggerated statement to say "that the annual slaughter in England and Wales, from preventible causes of typhus fever, which attacks persons in the vigor of life, is double the amount of what was suffered by the allied armies in the battle of Waterloo." Add to this the appalling fact, that each death from typhus implies from seven to twelve persons dragging out a long and painful sickness, under circumstances of the greatest privation and misery, and we shall realize the terrible extent of suffering within the power of relief.

Yet how little do we comprehend of the extent of the evils of the depraved *pabulum vitae*, atmospheric air, from these palpable, tangible illustrations. Dr. James Johnson, in his striking and impressive manner, remarks, in his Diary of a Philosopher, in discoursing of the evils of impure air, that "ague and fever, two of the most prominent

features of the malarious influence, are as a drop of water in the ocean, when compared with the other less obtrusive but more dangerous maladies, that silently disorganise the vital structure of the human fabric, under the influence of this deleterious and invisible poison."*

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* (*Extract from the Report of the Registrar General.*)

"Out of an equal number of males living, there were three deaths in London for every two in the healthy counties. Out of 1,000 boys under five years of age in Surrey, and 1,000 in Sussex, 48 and 50 died annually; out of 1,000 in London, 93 died annually. The mortality of children under five years of age, is twice as great in London as in the adjacent counties, including several towns.

"The excess of deaths in London is not the result of climate, for the climate differs little from that of surrounding counties; and some of the London districts are not more unhealthy than many country districts. Take Lewisham, for instance, comprising Blackheath, Sydenham, Eltham, and Lewisham itself. The annual mortality of females was 16, of males 18, in 1,000.

The actual deaths registered in London during the seven years 1838—44, were - - - - - - - - - - - - -	342,000
If the mortality during the period had not been greater than in Lewisham, the deaths in London would have been about - - -	244,128
Excess of deaths in London, - - - - - -	97,872

Here are 97,000 deaths in seven years, from causes peculiar to London. Other districts may be taken in the place of Lewisham, but the result would be the same.

"A considerable part of the population of London is recruited from the country; immigrants entering chiefly at the ages 15 to 35, in a state of good health. The sick and weakly probably remain at home; many of the new comers too, unmarried, when attacked in London by slow consumption — the most fatal disease at the ages 15 to 35 — return to their father's house to die; so that the mortality of the great city is made to appear, in the returns, lower at those ages than it is. If we take children under five years of age, where neither these disturbing causes nor occupation interfere, the deleterious influence on health, of London in its present state, will appear undisguised in all its magnitude.

The deaths registered in London under 5 years of age were - - - -	139,593
The deaths, if the mortality had not been higher than in Lewisham, would have been - - - - - - - - - - - -	80,632
Excess of deaths in London among children, - - - - - -	58,961

The British Government has long evinced the most high-minded and liberal policy, fully repaid by the returns to human health and happiness, of aiding science in its researches, as respects those great points of inquiry, which, however consequential in their bearings, can, from their magnitude and complexity, only be elucidated on the largest scale, and by authority. Among the immense mass of facts, bearing on man and his diseases, ever in the process of collection, and accessible to proper examination, are the reports of the army and navy medical officers, on the sickness and mortality of troops stationed around the globe. "These," remarks Mr. Hood, "prove most clearly the immense effect upon human life, produced by small and almost inappreciable differences in the quality of the atmosphere. For, in the same class of persons, performing the same duties, and placed as exactly as possible in the same circumstances, the average mortality varies in different parts of the world, from 1.57 per cent. to 66.83; or the mortality is nearly forty-nine times as great in some localities as in others."*

"Here are more than 58,000 children destroyed in London within seven of the last ten years."

Ninety-seven thousand deaths in seven years, from causes peculiar to the "comparative health" of London! Fifty-eight thousand children destroyed in London, within seven years, by removable morbid agencies! Three deaths in London, where there might be two! The chances of infant life in London, reduced one-half below even that very unsatisfactory standard elsewhere realized by sanatory arrangements!

* These reports contain the results of twenty years, and present the follow-

Did the hour or the scope of my design permit the general consideration of the effects, immediate and remote, of the pulmonary imbibition of the gaseous agents into the human constitution, under all their forms and combinations, how could I so powerfully illustrate my subject, as by bringing to your minds the great discovery of our age, connected so intimately with the name of a distinguished associate of our number, — a discovery already world wide, in the glory reflected on the land of its birth, upon our metropolis, our profession, as it is in the blessings it has conferred upon our race — a discovery, which, with vaccination, forms the two great triumphal columns in the world of medical science, — the *annihilation of pain by the inhalation of the vapor of ether?* If in our hasty illustrations of the influences of the gaseous mixtures of the air we breathe, upon health and life, we see disease, pain, death, horror, in the inspiration of the pestilential vapors of many names — in this we see health, relief, blessing, extasy! If those bring with them,

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ing per centage of deaths per annum, among white troops only — native troops being excluded:

	Per cent.		Per cent.
British Guiana,	8.4	Sierra Leone,	48.3
Trinidad,	10.63	Cape Coast Castle,	66.83
Tobago,	15.28	St. Helena,	3.3
Granada,	6.18	Cape of Good Hope,	1.37
St. Vincents,	5.49	do. Frontiers,	.98
Barbadoes,	5.85	Mauritius,	2.74
St. Lucia,	12.28	Ionian Islands,	2.52
Dominica,	13.74	New Brunswick,	1.47
Antigua,	4.06	United Kingdom,	1.4
St. Kitts,	7.10	Canada,	1.61
Jamaica,	12.13		

"blasts from hell," this, this truly "breathes airs from heaven!"

Proceeding then, in that strictly inductive method I have intimated as being essential to reap practical and applicable advantage in this art, I shall endeavor to sketch a brief but substantially complete account of the modes of ventilating various kinds of habitations, selected from the most successful and well tried examples. Having no particular preferences for, or convictions of the superiority of any given system by itself — confident that various considerations may render, sometimes one, sometimes another the more eligible, I shall not confine myself to a few methods, but endeavor to point out the prominent features of all the really tried arrangements.

I hardly need explain or apologize for the fact, that only a mere outline, an unclothed skeleton as it were, of the subject, can be presented within the compass of an hour, compelling a resort to pages omitted, to notes and appendices, for much of the exact and practical details, from which alone a clear understanding and ready adaptation of the labors and experience of others can be secured to our own community. It is fortunate that the precedent of so many of my distinguished predecessors, on this occasion, warrants a departure from what is written, which under other contingencies, would be so obnoxious to just objection. In this, as in most mechanical descriptions, knowledge, to be available, must be exact, precise, and specific; and the aids

perhaps of diagrams, mathematical formulæ, tabular deductions and results, and other matter not capable of being presented orally — addressed to the eye rather than to the ear — are essential to a full impartment of the subject.

With aids like these, it would seem that the art of ventilation could be brought intelligibly to the most moderate mechanical ingenuity, and that a few hours study would justify that self-reliance, which would prevent the professional man from giving place to merely artizan ability to repeat what has been done before, irrespective of differences of circumstances, and to protect the community against a presumptuous and bold empiricism, promising great results from insignificant means.

It may not be out of place to observe, that most of the examples which will be adduced as illustrations of the best results of modern ventilation, have been critically investigated by your speaker, during a recent short visit of exploration to the old world, devoted to this and some few other topics, connected with the completeness of our public institutions.

This declaration is advanced from no vain desire to give authority to opinions by any assumed weight of credibility as an eye witness, but from the notorious fact, that the accounts of most of these great works having been drawn up by their immediate friends, supposed inventors or suggesters, some safeguard seems proper against the undue partialities and extravagant eulogiums, natural enough to enthusiastic men, even when honest and disinterested.

It is worth while to mention in this connection, that almost all our accounts in the regular treatises, of improvements in heating and ventilation, are from writers, hardly standing in that disinterested position, which entire disconnection with the successful result of plans, would enable them to claim. The books on architecture, have hardly a page in a volume devoted to this subject. Some of the best known works make no reference to it whatever; and others merely sufficient to constitute an entry in the table of contents. A judicial mind thus becomes necessary, to separate the claims of interested partiality from the cool results of fact and experience.

The first illustration will be drawn from the recent arrangements under Dr. Reid's direction, for ventilating the English Houses of Parliament. This constitutes so marked and prominent an instance of the modern attempts in many of the works, that a brief history of still anterior trials on the same field may not be irrelevant. We can, in fact, upon this spot, trace the progress of the ventilating art almost from its first rude and undigested beginnings — at which I humbly conceive, we in this country now stand — up to that point of luxurious perfection, in which zephyrs, sifted and washed, cooled in icy passages in summer, and gently softened by the proximity of steam in winter, as well as impregnated with the balmy fragrance of "Araby the blest," are admitted in gentle and imperceptible volumes, — weighed and gauged, as it were, to fulfil the required demand.

From the varied ages and temperaments, the often impaired constitutions, the luxurious habits, the intellectual activity of so large and important a body, charged with so high functions, compelled to be together for many long hours at night, under circumstances often of the most intense attention and excitement, a defective ventilation must have been early recognized, and measures of relief projected. The illustrious Sir C. Wren, the original architect of the late edifice, as well as of all the best structures of the English metropolis, introduced nearly the same rudimentary method, so common with us, a specimen of which in fact ornaments, if it does not improve, this our anniversary assembly room. "At each corner of the house, in the ceiling, he made a large square hole, which was the bottom of a truncated pyramid, that was carried six or eight feet into the room above, and which was opened or shut with a kind of lid." "But it often happened," continued the describer of this early plan, "that when the pyramidal funnels were opened, the air above, being colder and denser than what was in the house, descended through the pyramids and annoyed the persons who sat beneath them;" one of the fatal objections to this plan which exists in undiminished intensity down to our days.

To obviate this difficulty the celebrated philosopher, Dr. Desaguliers, was called upon to devise a remedy. He constructed in the attic above the hall, a fire-place, the back and sides of which were of iron, forming a cavity, the upper part of which opened

freely into the atmosphere through the common chimney, while tubes from the truncated pyramids opened into the bottom of the box thus heated.* The obvious rarefaction produced an upward draught of vitiated air from the ceiling of the assembly-room. The activity of this current and the consequent change of foul air for fresh, would depend upon the amount of fire, and the freedom with which the replacing supplies were admitted below. From his description, it does not appear as if the Doctor appreciated fully the necessity of this last provision to a complete working of a ventilating plan. The effect of his arrangements, comprising so much of the true elements, as to render the remaining almost certain to be discovered on a fair trial, was defeated by the mischievous interference of an upper female domestic or house-keeper, who was deprived of some apartments by the occupancy of the space by the philosopher's apparatus.

In 1736, Dr. Desaguliers again introduced into the same edifice, the common centrifugal wheel or blowing fan, probably using it for the first time to propel fresh air into, or exhaust vitiated air from inhabited apartments. This machine for giving motion to air, is now in too common use in the arts of life to require a description. As a cheap and mechanical contrivance in winnowing grain, in furnishing liberal supplies of oxygen to facilitate the combustion

* Fig. 2. Pl. I. *c*, *c*, are the pyramids, now closed at the top, opening over the hall and connected by the flues *e*, *e*, with the cavities x, x, of the enclosing iron box *a*; *b* is the fire grate, fed in the attic *r r*.

of anthracite and other fires in steam engines, in producing a copious evaporation where rapid desiccation is required, and other purposes in the arts, it is widely employed; its rotary motion being given by steam, water, horse, or human power. As the exterior of the case covering the wheel, or the opening at the centre, is connected with the apartment, so will be its effect in throwing in, or sucking out the contained air. The natural practical result of this property is, that to accomplish the first of these processes, the apparatus is placed below, in the cellar or basement; for the latter, in the attic, or above the apartment.

The Doctor's machine was driven by the power of a single laborer. The fan is described as being seven feet in diameter, and having twelve floats or leaves. The speed was doubtless as great as so limited a power could maintain.

This was the sole apparatus employed up to the year 1820, when an ingenious French nobleman, the Marquis de Chabannes, introduced his method, which had previously attracted considerable attention from its efficiency at the Theatre Royal, Covent Garden. It consisted, essentially, of a large trunk or chimney, opening at the centre of the ceiling, into which various smaller flues carried from the galleries, or other neighboring cavities, were admitted. A number of cylinders were placed high up in this main foul-air chimney, into which steam was admitted, from a boiler below or above, as might be convenient. The air, rarefied by contact and radiated heat from these cylinders, would ascend, and its place be immediately supplied from the vitiated air,

provided fresh supplies were properly admitted below; a point of great importance, now specially regarded, but, as before suggested, much overlooked in the earlier attempts.

The House of Lords, a much smaller apartment, does not appear to have been regularly ventilated, until within quite a late period. In 1811, Sir H. Davy was desired to furnish a plan, which duty he discharged. The following is an outline of his project. A grate or fire-place for the combustion of coals, was constructed in the attic, through the midst of which fire a tube of iron a foot in diameter was carried, so that the whole exterior of the cylinder was surrounded by the burning fuel. This cylinder was continued downward, in a copper tube of the same size, so as to open in the top of the ceiling, and upwards to the roof.* Sir H. Davy did not overlook the necessity of a free admission of air to replace that withdrawn, nor the importance of its not being admitted in unhealthy or unpleasant draughts or currents. This fresh air, whether warmed or of its natural temperature, was admitted through a multitude of perforations in the floor. Two lines of an epigram, written on the occasion, have brought down alike the evidence of this plan of diffused admission being no recent invention, as well as perpetuated the liberal reward he received for his scientific skill.

"For boring twenty thousand holes,
The Lords gave nothing——d—n their souls!"

* In Fig. 4, Plate I, *a* represents the escape flue with its lower end opening at the ceiling; *c* is the grate or stove enveloping the iron part of the tube.

This apparatus is said not to have been uniformly efficacious, although it is difficult to see wherein the principle of it was not sufficient. A writer suggests that the management of the windows and doors in the hands of careless or idle persons, explains the occasional reversed action which was complained of. The architect attempting to remedy this, removed the artificial heating above, and with it all the ventilation of the hall. Insufficient magnitude of apparatus was the probable explanation of Sir Humphrey's failure. Dr. Desaguliers' wheel had continued in use seventy-four years, proving a considerable degree of efficacy, at least, when the great fire occurred in 1834.

At this epoch, the construction of the new houses of Parliament was decided upon, on a scale of magnificence and cost, quite unequaled in the modern history of architecture. This is still in progress, not having received the finishing touches after a lapse of fourteen years. To render this national palace as complete in convenience, acoustic perfection, and healthful arrangement, as it is in architectural grandeur and artistic decorations, the scientific corps of the United Kingdom were invited to aid the Committee charged with its construction, in the various points of pure air, proper heating, and acoustic fitness. In the careful and minute reports of the evidence given by these men of science, we undoubtedly have all that was valuable, then known in the scientific world. The evidence of Dr. Reid, a lecturer on chemistry of some eminence at Edinburgh,

impressed the Parliamentary Committee so favorably on his examination, that he was instructed to enter upon an extensive course of experimental trials upon the edifice temporarily occupied for the House of Commons, in order that any important results might be transferred to, or incorporated with, the new edifice.

The building which has been the seat of Dr. Reid's labors, is, in fact, the old House of Lords, which was the only portion of the former structure preserved from the flames. His experimental trials have been diligently continued for a number of years, and in a field where no want of means is allowed.

Dr. Reid has been subjected to much ridicule and unkind aspersion, in regard to his ventilating arrangements; and a misunderstanding with Mr. Barry, the architect of the new Houses, has not unlikely prevented the full application of his entire views, in that location to which all his previous attempts have been preliminary. Although unable to perceive aught in the essential points of his arrangements, so novel or peculiar as to place Dr. Reid in the class of discoverers — nothing, perhaps, which was not obviously understood and applied under more restricted circumstances, by Desaguliers, Chabannes, Sutton, Hales, and Davy — yet it cannot be denied that in a full application of the principles of science in his preferred adaptation, he has done all which any man could do. If occasionally, under an embarrassment of riches, he has allowed himself to seek a degree of perfection, passing into over refine-

ment and fastidiousness, it is the pardonable error of aiming too high.

Under the obstacles which have prevented the completion of his great work, according to his views, it is probable we must be compelled to look at the present application, as the highest specimen of his success, — subject, as it is, of course, to the difficulties of adapting new arrangements to an edifice long since finished.

A series of openings through the wall into a court yard, admits the fresh external air to the basement of the building. This being situated in a most impure and insalubrious district, it was necessary to connect the street sewers with the chimney, hereafter to be described, in order that their fœtid exhalations should not contaminate the air, at its point of admission. A suspended fibrous veil, 42 feet by 18, hangs before the external openings, the object of which is to separate the mechanical impurities, especially the flakes of soot, of which the London atmosphere is full, 200,000 visible portions having been arrested during a single evening.

The air thus screened, is next passed into a *receiving chamber*, constituting about one third of the basement. A partition divides this its whole length. At the middle of this wall, an opening permits the air to pass through an apparatus in which, by a thousand jets of water crossing each other in every direction, it is washed and moistened. It then passes amongst iron tubes filled with hot water, by which its temperature is raised to any required degree.

It now reaches a long chamber, parallel to the receiving chamber, from various parts of which, apertures are left which allow the air to press up into an *equalizing chamber* above, which extends under the whole hall of assembly. As the current passes up, it impinges against a flat board at each aperture, raised a short distance above, called a *disperser*, which throws the air somewhat horizontally, breaking its upward current.

No less than 300,000 of gimlet holes of a conical shape, with the smaller orifice upward, to prevent clogging by dirt, allow the air to escape into every part of the room above; and to make its diffusion more perfect, a hair-cloth carpet, woven porously for the purpose, gives it an extreme and universal separation.

At one part of the partition, between the first, or receiving chamber, and that from which the air is admitted after passing through the warming apparatus, is another door, making a direct passage for the fresh air without its impinging against the heater. By closing entirely or partially either of these two openings, as the case may require, any degree of change in heat can be obtained with but little delay. This circumstance, valuable in an edifice where the persons present may change from fifty to a thousand at once, or vice versa, is less imperious for common occasions, where no such contingency exists.

The escape of the vitiated air is provided for at the top of the room, where holes are left from one

end to the other into a horizontal channel above, which is received into a descending flue passing to the ground and communicating with the lower extremity of a brick chimney one hundred and ten feet in height. A fire-grate, with a door of supply for fuel, is placed in the centre of this shaft, a portion of the air passing under it to supply the combustion, and the larger remainder at the sides. A valve, or register, suspended in the main foul-air channel at the point above the ceiling where it turns to descend, regulates the rapidity of movement, and consequently, the quantity of air which is drawn through the house. In bringing the air downwards from the ceiling to the foot of the chimney, there is, of course, a loss of power in reversing the natural tendency of warm air to ascend. This, in an original construction, would be readily obviated by having the shaft commence in the attic. It still would be often a question, whether permanence of foundation and convenience of attendance, might not render practically eligible the additional height of chimney needful to counteract the loss by descent.*

* Fig. 8, Plate I, is a diagram illustrating the general outlines of Dr. Reid's celebrated attempt; *a* represents the place at which the outside air enters and passes in summer against ice suspended in a netting. In winter it is warmed by contact with the pipes represented in section *b*. Thence it follows through the passage *c*, and air chamber *d*. The current then ascends through the opening *c*, where its velocity is checked by striking against the flat board above. From the chamber below the floor, it enters through the gimlet holes and hair cloth, a portion being carried up by separate flues, *f*, to the galleries. Through orifices at *g*, it escapes into the foul-air chamber, *h*. From this, the suction of the chimney with the fire at its base draws down the foul air through the channel, *i*.

The house is heated to the temperature of 62° (F.) before it is opened, and maintained at a temperature between 63° and 70° by regulating the velocity of the draught.*

* Any one desirous of verifying the remarkable uniformity in temperature maintained in the House of Commons under the peculiar difficulties, will find the tabular records of the thermometer in Dr. Wyman's Treatise, page 226.

Dr. Reid states, that after the completion of the alterations, and when four hundred of the Guards were seated, in order to make some acoustic trials, impossible with empty benches, the experiment was made of the power of the ventilating draught. Large trains of gunpowder mixed with oils and perfumes to increase the fumes and prevent detonation, were fired in the chambers below. The House was filled at once with so dense a smoke that few could see each other; but in a few minutes it was clear, the full power of the ventilation being put on.

Dr. Reid also states, that the greatest supplies of air are required in autumn, when the air is warm and moist, the wind imperceptible, and the barometer low. Fifty thousand cubic feet are scarcely then sufficient, per minute, to sustain comfort in a crowded house.

A very neat and satisfactory adaptation of Dr. Reid's plan of ventilation was described by Dr. E. Rigby, senior physician of the Lying-in Hospital in the York Road, Lambeth, a low section of the British Metropolis. The hospital was seldom free, for any length of time, from puerperal fever, occasionally producing frightful ravages, and requiring the building every now and then to be closed. "After the greatest attention had been paid to cleanliness in every respect, the wards left open night and day for weeks, fumigated, repaired, and frequently renewed, and the most scrupulous attention paid to cleanliness, the fever re-appeared, on some occasions, *immediately* on the hospital being opened."

Believing that the cause of disease existed in the malarious emanations of upwards of 1,500 feet of open ditches, the Commissioners of Sewers were induced to clean and arch over a considerable proportion, at a cost of £500, but without remedying the evil. It was then deemed advisable, in 1842, to adopt Dr. Reid's plan of ventilation; and accordingly, a large sum was expended in the necessary alterations. The annexed diagram, (Fig. 11, Plate II), will explain the general method. Fresh air was introduced under the roof, at *a*, in order to obtain a purer supply *at an elevation*. From a general air chamber, *b*, it descended to separate apartments; a hot water pipe, *c*, gave it a moderate warmth, double glass windows being also introduced. A vitiated air chamber, *d*, regulated by valves, received the air from the rooms. The air in the basement, contaminated by the proximity of drains and impurities below, was prevented from passing into the wards above by the flue *i*; the air from it, and from the chamber in the roof, passing down the shaft *f*, and then into the discharging chimney *g*, to which an upward current was obtained by the fire grate at its base; *i i* are registers commanding the inlet.

It may be well to mention, that the size of this room is 80 feet by 40, and 30 feet in height.

In consequence of jealousies and difficulties among the men of science connected with this immense undertaking, both painful and unnecessary to recapitulate, an entirely different and novel arrangement for the heating and ventilation has been provided, under the direction of Mr. Barry, the architect, and Mr. Bell, who seems to have devised the air and steam arrangements.

The air is received in the usual method into the basement, — is there compelled to pass through tubes which are enveloped in steam, and thus have the temperature of the passing current raised to the desired point. It then passes under flues beneath the floor, after the method used in heating the floors of the ancient Roman baths, which, through their cast iron coverings, part with a portion of their heat, and radiate it directly under foot to the room. It then ascends to a pure-air reservoir,

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After this plan was completed, much opposition to its fair effect was experienced from the female attendants, who closed the egress and ingress apertures. A recurrence of the disease was directly traced to this unpardonable interference. The drainage of the building was also found to be defective. After these difficulties were corrected, in February, 1843, to the time when the testimony was given, June, 1844, not a trace of puerperal fever had existed.

Dr. Rigby states, that before this plan was adopted, the air of the wards was always close, oppressive, and *bedroomy*, owing to a want of proper ventilation. But as soon as Dr. Reid's plan of ventilation was permitted to have a fair trial, the air became not only free from effluvia, "but has now a remarkably clean, clear, refreshing feel, which I can only compare to the sensation produced on entering an empty room which has been recently whitewashed." — *Health of Towns Commission, First Report.* Vol. I, p. 119.

which delivers it downwards from openings in the ceiling, through the carved open-work of the beams.

The foul air escapes into another receptacle above the ceiling, which communicates with a chimney or flue, into which a jet of steam is allowed to escape, producing a most effective draught.

In summer, the air is drawn in through the same orifices, the heating being omitted, and a channel is also provided, governed by doors, which allows as much cool air, for tempering, to enter, as the state of the interior may require. Indeed, it is proposed to fill the space ordinarily occupied by steam, with cold water, from an Artesian well, to reduce the temperature of the air as it passes. That the air is well diffused throughout the apartments is certain, from no draught being perceptible, as well as from the fact, that a hundred large wax candles are burning in the evenings unprotected by any glass, with perfectly steady flames, as well as from direct experiments like the following:

When the air in the supply chamber is fumigated with a perfume, the aromatic odor is perceptible in four or five minutes, by a person sitting in any part of the house, and in fifteen or sixteen minutes, all trace of the perfume has disappeared. The figures will explain the detail of this apparently very successful arrangement.*

* Fig. 21, Plate IV, represents a longitudinal section; A is the House of

Our next specimen of successful ventilation on a large scale, is the late Chamber of Peers of France. The hall of assembly is in the Luxembourg Palace, situated in the centre of a large garden, and

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Lords. D the Victoria Hall or Lobby; E the Peers' Lobby; *a a a* the chambers under the house, &c. divided from it by a perforated iron floor, rendered air-tight from the house by a covering of lead. These chambers are for hot or cold air as may be required; C, the fresh air chambers in the roof; *c* the vitiated air chambers; and this part of the building is shown for clearness in double section; one half to represent the fresh air chamber, the other the foul or vitiated. The actual construction cannot be well shown in the longitudinal section, but is seen in the cross section where the centre division represents the foul-air channel, and the lateral spaces *b b*, are the fresh air receptacles. The dotted line *d d* indicates an iron tube for conveying the foul air from the Victoria Hall to the discharge shaft, wherein is the jet *f*, for moving the air; *e* is the foul air tube from the Peers' lobby to the same shaft; *g* the discharge shaft and chimney to the engine; *h* is the steam boiler; *i* the tubular arrangement by which the air is heated as it passes; *k* the orifice by which it passes into the diffusing chambers *a a*; *l* the steam pipe to supply the heater; *m* the room where the temperature is regulated; *n* the flues of the south wall of the Victoria Hall, up which the air passes with great velocity to the supply chambers, over the ceiling, two flues being appropriated to the Victoria Hall and four to the House of Lords; *o* continuation of flue for air from basement. Each flue has an area of six feet, thereby allowing the passage, with the ordinary velocity, of upwards of 7,000 cubic feet of air per minute; *p p* passages to supply the heater; *r* doors to shut off hot air.

Fig. 20, Plate IV. is a transverse section of the same; A House of Lords; B B the lower corridors; C C the upper do.; *a a a* the air chambers under the House; *b b* the fresh air chambers over the ceiling; *c* the foul-air chamber; *d* foul-air tube from the Victoria Hall. The flues on each side, from the air chamber *b b*, downwards, convey the air, if required, to the underside of the covings to the galleries, through the ornamental work. The air enters from the river side, the edifice being on the margin of the Thames, through a passage into a small chamber, on the floor of which are five or six inches of water, and passes through a finely perforated zinc screen, over which water is constantly trickling, and is thus freed from impurities. It then passes through the pipes, surrounded by steam, and thence to the chamber beneath the house; nearly 40,000 cubic feet being thus always ready for admission. The air next passes up the flues in the wall of the Victoria Lobby, into the upper reservoir over the ceiling.

The vitiated air is drawn up from the body of the house through the perforated enrichments in the beams of the central division.

The currents from the supply chambers are poured down through multitudinous perforations, in the side divisions, the two currents meeting in the centre of the chamber. The foul-air shaft and the chimney are united above.

under favorable circumstances for a pure circumambient atmosphere. It is a semi-circular apartment of about sixty-five feet diameter, with galleries for the spectators on the sides. The air for warming and ventilation is brought from the open garden in an underground shaft of masonry, about ten feet square. At about the point where this airduct enters the cellar, two fan wheels are arranged, each two metres, (between six and seven feet,) in diameter, and one and a half metre, (about five feet,) in length, and each with six floats or leaves. These are propelled by the labor of two men at a crank, banded to each wheel, and geared, to provide a suitable speed for such a motive power. These draw in the air from the outside, and at the same time drive it forward, and amongst the hot water heating pipes. It pursues its course thence by various upright flues to the apartment where it is to be used, and which it enters through a vast number of small orifices, dispersed in the risers of steps, and other convenient points, so as to produce a proper extent of diffusion. The vitiated air escapes at a large circular opening in the centre of the ceiling, directly under which hangs an immense chandelier, the heat from the numerous gas burners of which, occasions a powerful rarefaction, and consequent upward ascent of the air. The galleries are connected with the main trunk, by collateral flues entering it.

It was determined by various experiments, conducted with that system, science, and deliberation, for which the French philosophers are so distin-

guished, that this apparatus in its usual full action, withdrew each hour 425,700 cubic feet of air.

The summer ventilation was effected by adding the action of another pair of centrifugal fan-wheels, of the same dimensions, and propelled in the same manner, to supply the upward force of the heating apparatus, the use of which being, of course, then suspended. Moved at their ordinary speed, it was found that seven cubic feet of fresh air were supplied each minute, to each person.

The sufficiency of these arrangements, designed by M. Talabot in 1840, were tested and approved by a government commission, consisting of M. M. Thenard, Gay-Lussac, Poullet, and Péclet, some of whom have a world-wide reputation in science.

Let us pass to another class of institutions — from palaces to prisons. The condition of these was most early and prominently connected with the history of ventilation, as well as of epidemic disease. The writings of Howard, the history of the Black Assizes at Oxford, and other sad memorials of the fatal ills resulting from prison-air, attest how fully the necessity of artificial changes of atmosphere was required, long before science had lent its aid. And in these very seats once of the most pestilential miasmata, we now find the most complete and luxurious examples of the application of our art.

The Model Prison, as it is termed, at the suburb of Pentonville, near London, was in every particular designed by the most competent persons, with the most unrestricted provision of means, to fulfill the

highest attainable perfection in all its material arrangements, especially in its heating and ventilating. Although some respectable observers have supposed that they had detected deficiencies in the operation of its apparatus, yet it is certain from the Parliamentary Reports containing the exact tables of Dr. Rees, the physician, and others, — presumptively incapable of bending, much less of falsifying records of numerical facts, — that the quantity, temperature, and hygrometric condition of the air, furnished to each convict, are measured with almost as much certainty and precision, as his food, drink, or light. The form of prison discipline there adopted, would be considered with us a mild and modified form of the Philadelphia or separate system. Each prisoner is detained constantly in his cell, except during a comparatively liberal allowance of time devoted to religious exercises, educational improvement, and out-of-door exercises. Each cell is thirteen feet long, seven feet wide, and nine feet high, to the key-stone of the arched ceiling above, and consequently contains about 820 cubic feet of space. It is, however, scarcely worth while to adduce a point so immaterial in any true system of ventilation, as the size of an apartment. The windows are stationary, and each cell is fitted up with water-closet, washing apparatus, gas burner, besides bed, table, and seat, together with the loom or other implement of the mechanical art, pursued by the inmate.*

* Fig. 10, Plate II, is a diagram reduced from one of the elaborate and exact

An under-ground flue, commencing at a low tower to protect the inlet from animals or other accidental sources of impurity, brings the pure fresh air into contact with the hot-water circulating apparatus in the basement of the building. This apparatus consists of plates and tubes of iron, filled with hot water, which dispenses its heat, by conduction and radiation to the air, as it passes by to enter a flue or channel running from the centre to the ends of each corridor, just in front of the ranges of cells. From this horizontal channel, upright flues are carried into each of the two stories of cells, and are made to discharge themselves near the ceiling, and are controlled by registers, to regulate the admission of warm air.

The foul-air or escape flues open in a grated orifice, about two feet long by six inches wide, near the floor, and thence pass up in flues in the wall, into the attic, where they enter a common horizontal channel, the end of which terminates in the large chimney shaft, rising twenty or thirty feet above the ridge of the roof.

The smoke flue of the fire which heats the water for warming the air, opens directly into the foul-air chimney, and, by the rarefaction produced, consti-

drawings to a scale, published in one of the Reports to Parliament — to which reference is made, for any desiring more precise information of the architectural detail. The cold-air flues deliver the fresh air under the hot water apparatus at C. It passes up the flues EE, to the top of the cells GG. The foul air leaves the cell floors at FFFF, ascends to the attic channel H, where the smoke flue is turned in, on one side. For summer service, a grate and fire at I, aids the ascent into the flues KK, which become one by the partition or withe at L, having been omitted.

tutes, in the winter season, the motive or exhaustive power, — the warmed air also aiding to some degree the egress of the vitiated air, as it enters the cells, by its *vis a tergo.*

In summer, when it is desired that the air should enter through the same channels, but without heat, a fire is made in a grate inserted in the chimney, and accessible from the attic, through and by the sides of which the foul air ascends and escapes. The peculiar advantage of having the warm air admitted at the ceiling, is, that the change of direction diffuses it through every part of the cell, breaking up the draught; and it is also less likely to be interfered with, polluted, or blocked up, than if admitted at the floor. The effluvium from tobacco or other impure ejections, instead of combining with the entering current, to be imbibed in respiration, is drawn out forthwith — a circumstance of unusual importance in all American attempts at ventilation, where the personal habits of the community, in some respects, are so exceptionable. The only objection to this reversed movement of the current, is the loss of ascensive force, easily supplied by a little addition to the fire.

The whole arrangements of the Pentonville prison, relating to ventilation, contain so complete an embodiment of one of the most common of the modern systems, as to be worth a closer investigation than the discursive character of an address will permit. A reference to the accompanying plan, will enable its action and its efficiency to be fully comprehended.

In the continued advances made in a country of so much capital and science as Great Britain, we find the same general system introduced, in later constructions, with improvements in those particulars where experience had shown defects.

In the immense penitentiary, established at Wakefield, in the West Riding of Yorkshire, the hot water pipes pass along a channel, or large flue, which runs from the central boiler to each end of this corridor. Each section or joint of this iron pipe is increased in diameter in order to compensate in quantity of warming fluid, and extent of radiating surface, for the diminished heat lost in passing from the boiler. In this institution, the foul-air flue, instead of opening at the floor and then passing upward, descends from the lower part of the cell, and enters a horizontal drain, the common receptacle of all the foul air flues, which delivers its contents into the upright chimney shaft, partly entering through, and partly around the fire-grate, as usual.

Few classes of inhabited buildings demand so effective, certain, and controlable means of supplying pure, and removing vitiated air, as hospitals for medical and surgical diseases, and asylums for the insane. In these, pure air becomes not merely hygienic, but sanatory — not only a preservative, but a curative appliance. As respects the first-named institutions, their history in all countries demonstrates not only how important ventilation is as regards those forms of epidemic and contagious diseases, directly resulting from impure air, as typhus, erysipelas, hospital

gangrene, and the like, but as respects those general results of aggregate experience for years, not less certain, although less palpable. The statistical results of simple amputations, in particular hospitals of Paris, and in the whole, are well known to those interested in surgery, and most strikingly illustrate the connection referred to. In the latter class, those for the insane, the peculiar depressive, torpifying influences upon the mind and feelings — the intellectual and sensitive faculties, are now universally acknowledged, and are as susceptible of proof, as any of the purely physical disorders, dependent on vitiated air. I have frequently thought and observed, in passing from one to another of the lunatic receptacles of the old world, that a glance upon the countenances of a group of the inmates, would at once tell the fact, whether they habitually dwelt in a habitation, the purification of which was abandoned to the chance changes from doors and windows, and the almost equally unreliable draughts of upright flues, in which the currents of air were spontaneously determined only by the accidental preponderances of internal heat and external currents; or whether they passed their days and nights in that pure, elastic, healthful medium of equalized temperature, qualified hygrometric condition and copious supply, which some of the modern and improved exhaustive arrangements so fully command.

The eminent philanthropist, Dr. Southwood Smith, in his testimony before the Parliamentary Commission, is the first writer who appears to have recog-

nized fully the connection between the intellectual and moral faculties, and the habitual imbibition of vitiated air. "The poison," he observes, "generated in these neglected districts, and to which these persons are habitually exposed, is a sedative poison, among the most distinctive characters of which are the depressing effects produced by it, both on mind and body. This is one of the main causes, not only of the mental apathy, of which I have already spoken, but also of that physical listlessness which makes them incapable of any great exertion. I am satisfied that this feeling of depression, is one of the chief inducements to the use of stimulants."

Let us select an example of improved insane hospital ventilation, which has undergone the test of a dozen or fifteen years' actual and successful experience, in the asylum of the county of Kent, at Maidstone, in the southeast part of England. This was arranged for a complete exhaustive ventilation from its commencement, under the direction of Mr. John Sylvester, who has long maintained an eminent place in this department of applied science, and the basis of whose arrangement is that originally suggested by Mr. Strutt, of Derby. I prefer giving the substance of his own account of what it is, with suggestions as to certain alterations which he would subsequently have recommended, as inferred from his testimony before the Parliamentary Commission so often referred to, in preference to using my own notes of a visit to, and examination of, the institution itself. I need only say as regards the example

itself, as I found it, that nothing more satisfactory could be conceived. The distinguishing peculiarity is the supply of the whole edifice with an immense volume of air, warmed scarcely above the temperature at which the interior was designed to be maintained. This system is predicated on the principle, that in certain circumstances the unpleasant exhalations from the diseased human body require a change of air, far greater than the quantity indicated for the vitiation produced by the respiration processes. The pure air is received by means of a large revolving cap or cowl, kept with its open side to the wind by a vane, into a tower of moderate elevation, a few hundred feet from the buildings, to prevent any obstruction of wind, or defilement. An underground channel of masonry, two hundred yards long, and six feet square, terminates at the usual hot water apparatus, with the exterior of which the passing current is brought in contact, and thus ascends in immense flues, which open near the ceiling of the galleries. These channels are all so large as to allow the velocity of the air to be exceedingly small, moving through the underground channel only at the rate of four feet per second. The air, at its point of delivery, by its amount, its gentle current, and its moderate temperature, reminds one of the gentle, elastic breeze of the tropics; and there is in its large volume and slow movement, little necessity of any arrangements for divided admission, or other diffusive means, to enable a general and uniform spreading of it to be attained. An exhaustive apparatus

of the simplest kind and least force is sufficient to deflect and scatter a current moving at this slow rate. Mr. Sylvester thinks that it is desirable that the rate at which the air should flow into the interior, should not exceed half a foot per second, or about a third of a mile an hour.

Mr. Sylvester's plan provides ranges of pipes, filled with steam, in the attic, to raise the temperature, and by rarefaction produce the upward current. The summer ventilation is through the same channels, omitting the warming as the air enters. A vacuum cap, turning its mouth to leeward, permits the vitiated current to escape, and when the air externally is in motion, is of some auxiliary service in this way.

Mr. Sylvester, in explaining the plan he would adopt for ventilating the House of Commons, estimates the entire interior contents at 200,000 cubic feet; and here he purposed admitting the air over the whole area of floor, as far as practicable. The combined area of the apertures to this end he calculated at 665 feet. The current of air was to flow in at the rate of half a foot per second, at which velocity it would change the contained air six times within each hour. He would admit the warmed air at a temperature within 5° of that at which it was decided to maintain the house.

The diagram and explanation will give a clear view of his ideas of ventilation, in the experience of which, in the largest and most complete examples in Great Britain, he seems to have had far

more general opportunities than any other individual.*

In another example of a lunatic hospital, the most modern and complete of the French institutions, the Maison Royale, at Charenton, the exhaustive power to withdraw the vitiated air is formed by running the small pipes filled with heated water longitudinally through the foul-air flues; the rarefaction thus produced liberates the foul air, and draws in the pure supplies below.

I will adduce from the elaborate and scientific work of M. Péclet, a still further illustration of a plan of ventilation, which has stood the test of experience, in a hospital for common diseases, referring to the drawing for the exact details.†

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* Fig. 9, Pl. II. is reduced from the plan offered by Mr. Sylvester to the Parliamentary House Commission; *m*, is the body of the house; *a*, is the tower, which admits the cold air and allows it to pass through the channel *h*, impinge against the hot water or steam pipes at *c*, and then is admitted through the floor *d*, as the arrows indicate; *i*, *i*, are the escape holes in the ceiling; *n*, the steam pipes which serve as the motive power; *o*, is the turn-cap, moved by the vane so as to present its mouth to the leeward; *x*, is a flue which would allow the warm air, by means of a register, to pass directly into the attic, aiding the upward ascent, and acting as a waste when too great heat arose from the apparatus; the aperture, also marked *x*, near the floor, enables the foul air to be drawn off at bottom, when the upward orifices are closed by their registers.

† Figs. 15 and 17, Pl. III. represent the middle section of a hospital of three stories. In the cellar is the air-chamber, containing the hot water apparatus, and channels communicating with the external air. A, is the boiler; E, a double spiral coil of iron pipe, to give ascent and some warmth to the air of ventilation, which then ascends in the flue F, which distributes it on each story. It passes along the corner of the walls, at G G, H H. The foul air escapes into the attic, from which it escapes by the chimney I, aided by a grate for summer use. The hot water is carried into each story and radiated from the hot water stoves, D, D, D, &c. Fig. 17, is a ground plan of a part of one of the stories, showing sections of the ventilating flues H, H, H, and the horizontal branches *g*, *g*, *g*, opening under the beds.

In the middle of the cellar is a large air chamber, receiving its fresh supplies from the outside. A boiler of water having a concave bottom to receive the full force of the fire, is placed within the air cell, from which radiate the tubes designed to warm the house. One of these tubes proceeds from the bottom of this boiler, passes to the lower end of a fresh-air flue, which leads from the air chamber communicating with the exterior, and is then twisted into a double spiral nearly filling the width of the flue. A certain degree of ascensive force is thus given to the air of ventilation. This air channel sends off branches as it reaches the different stories, in wooden boxes which deliver the fresh supplies at various openings. A horizontal branch passes out under each bed, where it delivers its pure air, slightly raised in temperature, through three free openings, a valuable point of the operation of which is understood to be, that a sheet or curtain of pure air, rising around the patient on every side, protects him against the approach of odors or exhalations from those in adjacent beds, as it does them from his.

The vitiated air is conducted through a set of escape-flues, which terminate in the attic. A chimney proceeds from the attic upwards, a fire-grate at the inferior orifice of which gives activity to its draught. The interior is heated, in addition to the small amount of heat contained in the air warmed for ventilating purposes, by one of the varieties of the mild

hot water apparatus *; the tubes from the boiler in the cellar, passing to what are termed hot-water stoves, which are merely ornamental iron reservoirs of hot water, having a pipe for its admission and return, and the large radiating surface of which raises the interior atmosphere to the requisite temperature. The peculiarity of this arrangement is, that the heating and ventilation are combined in a certain way calculated to save any waste which would occur from heating more of the external air than is necessary for the due restoration of the atmosphere.

An example of the every-day application of some of the true principles of heating and ventilation in a cheap and simple form, will be found in a common Parisian school-house. The specific example is taken, with the annexed sketch,† from the work of Péclet, although the general principle has long been in common use, under very many modifications. The apartment is of a rectangular form, and about of the dimensions of one of our larger forms of grammar school-houses. The teacher's desk is placed within a few feet of one end, and in the middle. On each side of this, and midway between the

* Those forms of hot water apparatus, in which the fluid is raised to a temperature not exceeding 212° F. are designated under the term *mild*, in contradistinction to Perkins's intensely heated water tubes.

† Fig. 13, Pl. III, is a diagram of a room of the school-house, shortened in length for convenience. B, B, are the seats; C, the stove covered by its ase; D, is the funnel entering the chimney, E; *i*, is the damper in the cold-air flue; *f*, is a grate inserted in the chimney. Fig. 14, is an end view to show the mode in which the foul-air flues enter the chimney; *b*, is the door to the ventilating grate; F, F, revolving registers; E, the chimney.

sides of the house, are placed two coal stoves, very similar to the common cylindrical anthracite stoves, in so common use among us. This is covered over with a case of iron, copper, or other metal, leaving a space of three to six inches between. The case extends to the level of the floor, where it rests upon a groove in a cast iron plate, which is set over a flue extending horizontally under the floor to the external air. Various holes are left in this plate, so as to allow the fresh air to pass up in the interspace between the stove and the exterior case. It is warmed by this contact, and escapes freely either by large openings, or small perforations around a few inches of the top of the case. The top is usually flat; and the impulse of the air, striking against it as it rises, naturally diffuses and spreads it much better than if the apertures of exit were more direct in the top itself; the lower surface of this cover has been made in the form of a blunt cone, or segment of a sphere, to produce this effect more freely. A valve or damper in the cold-air flue, commanded by a handle, permits the amount of air admitted to be controlled.

The funnel is carried in the usual way, perpendicularly, high enough to prevent any undesired radiation upon the heads of those seated beneath, and then horizontally to the middle of the opposite end of the school-room. Here it enters a smoke chimney which commences at the ground level. At three or four feet from the floor are openings, commanded by revolving registers or other valvular

arrangements, which admit the foul air into the chimney by the suction produced by the rarefaction resulting from the stove pipe which enters above. At the same level, or a little above, a fire grate is inserted in the chimney, with a door for feeding. This of course is designed for the summer ventilation only, when the heating fire is omitted; and the pure air supplies are drawn from the outside through the winter channels, with perhaps additional and more direct orifices of admission, but without opening the windows.

I am aware that this form of air stove or furnace has been pretty widely used in this neighborhood for a good many years; but the long previous experience in France is corroborative of its excellence. It has been a common mode to place anthracite stoves in the basement vestries of churches, with an air flue running from between the coal vessel and the external case, often of tinned iron, kept bright to prevent radiation at a point where it is undesirable. The hot-air flue is carried directly into the church or hall above. An opening is also left in the external case in the vestry or basement below; and the dampers commanding these respective places of exit of warmed air are connected by a wire, so that when one is opened, the other is necessarily closed. A damper in the external air-duct should never be omitted, as otherwise the varying direction and strength of the winds will produce an irregularity in the supply. If the cold-air duct can also be extended out to the open air on both sides,

a great improvement in its regulation will result. The connection of the dampers admitting air into the respective rooms where it is to be used, is quite indispensable to obviate the danger from careless or ignorant persons closing both at once, an accident which terminates in a destructive accumulation of heat, pernicious to the purity of the atmosphere, and melting and warping the tin coverings, and even the fire surfaces.

The plan of heating, and consequent partial provision for ventilation, recently recommended and introduced into some of the Boston school-houses, is, essentially, that described above. A stove is used in its position, construction, and receipt of fresh air, precisely similar to those long employed in France and elsewhere, except that the warmed air, instead of being allowed to escape through large openings, or small perforations around the top, passes directly out at the upper point of the interspace between the case and the stove; while an obtuse, conical top with its hollow downward is suspended, or slips on a rod or on the funnel of the stove, as if designed to act as a register, which has received the name of a *distributor*. If this is allowed to be closed down to a certain point only, wide enough to give full egress to the warm air, it does not differ much from the common French cover, in which the oval openings are large, and separated by columns or wires of metal sufficient to give firmness to the top. If it is allowed to slip down, so as to act as a valve, and interfere with or prevent the escape of heated

air, the apparatus is brought back at once to a species of old box stove with double walls. The attempt to regulate the quantity of heat admitted to a room in any form of calorifer or hot-air furnace, should be made any where else rather than at its point of escape. The heat is only accumulated by such attempts to be expended upon the stove itself, and then to *roast* the air. Indeed, with a command over the admission of the air of combustion, over the register of the ingress flue, and for extraordinary emergencies, with a waste opening to the outside from the air chamber itself, no necessity need exist for checking the heated air at its outlet.

The Boston school-houses appear to have their exhaustive power furnished in a much less reliable method than in our French specimen, that is, by a chimney cap. The attempt to obtain an upward current, by the action of the wind upon any form of cap, is for obvious reasons perfectly inadmissible in any true ventilation. That employed in the instance adduced, was invented by St. Martin, in 1788; and, when made at a proper angle — which is found by Dr. Wyman's investigation, to differ some degrees from that most frequently used by our manufacturers — is as effective, perhaps, as any apparatus of this kind when the wind blows.*

The absence of any apparatus for fire at the foot, or any other point of the foul air or smoke chimneys, would seem to imply that the summer ventila-

* See Report to American Academy of Arts and Sciences, on Ventilators and Chimney Tops, p. 14.

tion is to be principally dependent on the opening of windows. This, it is hardly necessary to say, must be considered as a great defect in any complete modern ventilation for school-houses in large and noisy cities and populous towns.

A form of this, which is in fact a kind of air furnace in the room itself, much used in some parts of Europe, is selected from among a great variety given by Péclet, and a copy of it annexed will explain itself at a glance.* The cylinder stove is covered with a case of metal, crockery, or even stone, more or less ornamental, receiving its air from the outside, warming it as it passes the interspace, and delivering it around the upper few inches of the top. The funnel is carried directly through the fire-board or masonry filling the original fire-place. Here also is inserted a revolving register, or other movable valve. The heat of the smoke produces a lively upward current. This sucks off the lower stratum of air of the room, draws down the warm portions, and thus equalizes the temperature throughout, while it is renovating the whole by degrees.

Three registers, one in the cold-air flue, one in the exit or foul-air flue, and one in the smoke-flue to command the rapidity of combustion, enable the management of it to be controlled with the smallest amount of intelligence and observation.

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* Fig. 16, Plate III. In these two examples, the air stove stands before the closed fire place; A admits cold air from without, into the interspace; B is the smoke-flue; C the foul-air duct.

After all, however, these are merely forms of hot-air furnaces placed in the apartments, instead of the basement or cellar beneath; and it is questionable whether the comparison of conveniences and disadvantages will often justify this location. The fact that in all combustion of fuel, especially of the carbonaceous varieties, there will be some escape of ashes, or of gases, into the room where it is used; the inconvenience of feeding the grate in the room itself; the care of preserving an exterior of metal in a clean condition; the greater inconvenience of establishing an evaporation of water into the air heated, and some other objections, may sometimes be overbalanced by convenience of attendance. Usually, however, in public buildings where the extent of operations will justify the attention of some person to the business of heating and ventilating, the true point of location for the hot-air apparatus is in the cellar or basement.

The character of any variety of the hot-air furnace is measured, in my judgment, by the simplicity of its construction, its non-liability to be brought to an undue degree of heat in any part, and its ready receipt and emission of air. That made and sold by Mr. Gardner Chilson, of Boston, with an air chamber of brick and an interspace of two or three feet in width, appears to me to combine all the essentials attainable of this mode of heating air more fully than any other which has fallen under my observation. In proportion as they approach the old Wakefield furnace, — in which the

sides of the air chamber are removed from the *cockle* or fire-vessel by an interspace of a few inches only, and the passing air is held in contact with the overheated surface as long as practicable by various turns of direction at right angles or those forms of the French calorifer, in which the cast iron tubes are heated to a red heat, while the air to be respired is passing through them, — so far do all the various hot-air furnaces deteriorate in healthfulness and comfort.

A single other illustration of successfully arranged ventilation on a scale and after an experience sufficient to give it a character, will close this part of our subject, and enable us to pass to the generalization deducible from the mass of individual instances, each one of which is of course merely a type of more or less numbers. The National Bank of England and also of Ireland, have been ventilated under the direction of the bank engineer Mr. Oldham, by the revival of a method, — the employment of bellows, or the blowing cylinder, introduced more than a century since (1741), by Dr. Hales, into many of the prisons, hospitals, and other buildings of the British metropolis, and into nearly all the ships of the Royal Navy, and in many instances, when under adequate supervision, with the greatest success. At that period when steam power was unheard of, instead of being as it has almost become in our days an appliance of domestic use, the apparatus was dependent on human labor,

which must have rendered its employment inconvenient and uncertain.

Mr. Oldham availed himself of the steam engine in use for printing and other processes of the establishment, to give motion to a large blowing cylinder of the double-acting kind, drawing its supplies from the outside, and forcing the air amongst the steam heating tubes, until it enters by many orifices the large room in which the many officers and persons having business are congregated. The temperature is of course easily regulated by the extent of radiating surfaces employed and the activity of the air-propelling movement.

Having now recapitulated in a brief manner, but still, it is hoped, with all the characteristic and distinguishing features, the principal examples on a large scale of modern ventilation, it remains for us to attempt to generalize the various points and peculiarities, to select the essential from the accidental, and deduce principles of universal application from instances in which they may be more or less distinctly combined.

The first peculiarity which strikes us, is of a negative character — the omission of all reliance on, or provision for the admission of the pure element, or the discharge of it when vitiated, through direct lateral openings, doors, or windows, — methods so primitive and so universal, that at first glance we almost deem them the natural modes. In fact, these ready substitutes have been proved by all experience to be wholly

unequal to the duty; and also so incompatible with the systems involving other indispensable points, as to render their entire omission a first principle. Every modern system, as shown in our illustrations, recognizes the closure of all orifices not connected with, and forming part of the ventilating system, as a matter of course; the windows in fact, generally being made double, either by duplicating the sash, or what is better, having a second range of lights set in the same fixed sash, with a confined stratum of air between half an inch thick. The doors also are duplicated at the extremities of a short passage or entry, so that the one in front is not opened until that in rear has thrown itself to. In fact, the cross-draughts, supplies from sources and emissions of air at points not determined by the motive power, would be utterly inconsistent with any uniformly arranged plan. As Dr. Reid well remarks, in any scientific plan, the apartment to be ventilated is to be deemed and treated as a piece of philosophical apparatus, the results of the operations of which are to be interfered with by no fortuitous influences.

The second point of agreement in our examples is also of the negative or omissive character. This is the abandonment of all attempts to rely upon the slight differences of temperature and the resulting ascensive power, derived from the presence of numbers of occupants, or from the ordinary artificial warming. Though under certain favorable circumstances of aerial currents, external and internal states of the thermometer or other contingencies, flues for

permitting vitiated air to escape and its place to be supplied by fresh quantities, may operate with some energy, yet experience shows that it is a system too capricious, too wholly devoid of that certainty and controllability, radically essential to a perfect ventilation, to be thought of at this day. This is the mode which has obtained so generally in our American prisons, hospitals, and public assembly rooms, and from its unfortunate universality its consideration deserves more detail than the present limits permit. In the Appendix, a practical view of the circumstances affecting the delivery of air through various forms and conditions of flues will be given.*

The third circumstance of uniformity in our successful examples adduced, as well as in a wider spread series of cases, (were it of moment to investigate them,) is also one of absence: viz., the omission of dependence upon all kinds of apparatus or contrivances operated upon by the passing current of external wind. This, of course, comprehends all kinds of turncaps, cowls, louvres, and the like. In some instances, the *plenum* and *vacuum* cowls, as they are respectively termed when their open mouths are turned to or from the wind, giving them a filling or exhausting action, are advantageously employed as a collateral or auxiliary measure, saving a certain amount of motive power when in action, but never trusted to as the effective and constant power.

* Appendix A.

With respect to all the hundred varieties of contrivances of the turn-cap or cowl order, most of which have been invented and reinvented every few years, their whole consideration may be briefly despatched in simply observing that their utility is wholly dependent on a movement which frequently, at uncertain times and sometimes for long intervals, ceases to exist. Consequently the ventilation of buildings depending on the winds, must be just as uncertain as the wind itself, and the occupants of a crowded habitation might as reasonably trust to the prevalence of calms and breezes in a certain sequence for their food and drink, as for their air.

During brisk and active winds, any varieties of them will produce a considerable fluctuating, upward draught. At such times, however, the natural ingress and escape of fresh air unassisted, is the most ready, and of course the necessity of artificial aids the least urgent. In the stagnant, heavy atmosphere, prevailing not unfrequently week after week at certain seasons of our climate, the necessity of certainty of change becomes the most imperious. The effect, at these important times, of any or all of these multiform contrivances is only that of impeding whatever disposition the internal air has to escape arising from augmented temperature, by more or less obstruction at the orifice of the tube, amounting in the least unfavorable specimens of the revolving kind, to one turn at right angles and the friction of more or less uneven surfaces.

The experiment of two distinguished practical mechanics in New York, Messrs. Ewbank and Mott,

demonstrated that there is a considerable difference in the exhaustion of these variously shaped contrivances; that is, when they do act at all. The exact, certain, elaborate experiments on certain varieties of these things, made by a committee of the American Academy of Arts and Sciences before referred to, the detail of which was directed by Dr. Wyman, forever settle all controversy as to the respective merits of the different specimens tested, as well as the want of originality in any modern modifications.

In reverting to the points of positive accord in our examples, we find that they all present a common feature in the following essentials.

I. The obtaining the fresh air from pure external sources, by distinct, appropriate, ample avenues. It is never taken from the cellar or basement of the building, nor from the accidental crevices, or passages provided for other uses. Most frequently a channel of masonry is constructed under ground, and carried to such a distance from the house as to make sure of a pure admission. A tower, or chest with openings, prevents the orifice being blocked by snow, or the accidental admission of living animals or other impurities. Local sources of impure air, which cannot be better avoided by the selection of a spot for the outer opening, are connected with the exhaustive arrangements. Sewers which may be crossed, are covered with air-tight cement work. In fact, no pains are spared to obtain the air in a perfectly pure condition.

In cities where carbonaceous flakes are common,

a fine wire netting is thrown across the flue to arrest the palpable defilements. Even veils of fine gauze cloth are used by Dr. Reid, and the finest perforated sheets of zinc by Mr. Bell, to stop the impalpable, dust-like particles; and the air is also washed by jets of water, crossing each other in every direction, or by water dribbling over the perforations.

Mr. Sylvester found in his trials, that there was still another advantage in bringing the air through long underground channels. They had the effect to equalize its temperature. In one hundred yards, for instance, it received in winter about 15° of heat, and lost the same amount in summer. In the intense heat of our northern summers, this last advantage, combined with the hygrometric addition of jets of water, would be no small consideration.

In Dr. Reid's plans for the new parliamentary edifice, he proposed taking his fresh air at the top of a tower some two hundred feet from the ground, from the difficulty of finding a pure source at the level, in the impure and crowded district in which it happens to be located. This arrangement of course is attended with the sacrifice of motive power necessary to reverse the admitted column of air.

In various foreign instances, of which one example is presented in Dr. Rigby's evidence,* the air is admitted under the roof, and carried directly downwards to pass through the heating apparatus, from

* Fig. 11, Pl. II, described in note, page 338.

which it is then delivered into the rooms above. The air describes three sides of a square in its course.

In various instances, to prevent the irregular draughts through the ingress channels, the air is received into a chamber of considerable size, which acts as a reservoir, destroying the motion of the air. It is then subject to the equable indraught of the motive power. Our examples refer to the placing of ice suspended in a netting, to reduce the temperature in the heats of summer, or filling the steam or hot water heaters with cold water in circulation for the same end.

II. Raising the air admitted to produce warming and ventilating, only to a very moderate temperature.

The subjects of heating and ventilating are so intimately connected in practice, that they can hardly be treated of separately. In our examples, the summer ventilation is often carried on by an arrangement independent of the heating. In winter, the two processes appear to be rarely entirely disjoined.

It seems to be admitted universally, that the true principle of heating the air is never to have its temperature raised above what results from the contact and radiation of metallic plates or pipes, filled with hot water or steam. A peculiarly unhealthful change appears to be occasioned by raising air, even apparently free from appreciable accidental impurities, to any higher heat than about the boiling point.

Whatever may be the chemical changes in air so heated or the pathological effects of its respiration, the actual annoyance arising from *roasted* or *scorched* air is too notorious to be doubted. Its probable explanation is the decomposition of floating, impalpable particles of vegetable and animal nature — certainly not, as is often suggested, and even provided for by stone or earthen radiating surfaces, any deoxygenation from the combination with the iron, since this is chemically impossible, and equally observable when no oxide is formed.

So impressed was that eminently practical philosopher Mr. Tredgold, with the exceptionable character of any air introduced heated above the temperature of boiling water, that he declined taking into view any of the varieties of apparatus in which such a result is practicable. All kinds of stove heat he regards as wholly inadmissible.

It is probable that some few of the hot air furnaces composed of a very extended dome or *cockle*, air chambers sufficiently large and arranged for so low a temperature as to allow a person to enter and remain, and with perfectly free avenues of admission and egress of air, may not fall within the purview of his unrestricted and generally correct dismissal of this class of apparatus.

Public experience has settled down into the conviction that this moderate elevation of temperature can be best secured by the use of steam, or the mild hot water apparatus. This latter name is, as before intimated, applied in contra-distinction to the system

of hot water pipes invented by our countryman Jacob Perkins, a few years since, in which water was heated in small strong pipes to a temperature of several hundred degrees, and radiated heat proportionably. The facts that the air was vitiated by these, as much as if heated by blazing fuel inside, and that the apparatus was complicated and hazardous, have occasioned so general an abandonment of his method, as to require for it merely a simple recognition of its existence. It certainly ought never to be used where the highest perfection is sought.

The heating apparatus, whether hot air furnace, hot water of either class, or steam, may be employed by being placed below, and the air delivered from the air chamber which encloses the tubes or other radiating cavities into the apartment in which it is to be used; or secondly, by the air supplies being admitted to the air chamber of the apparatus in the room itself; or thirdly, a part of the air may be partially warmed and admitted for ventilating, while the remainder of the needed supply is furnished by some disconnected heating means, as open fires, water stoves, steam pipes, or otherwise; or fourthly, the apartment itself may constitute the air chamber to the furnace, and the air of ventilation be admitted in a natural state from outside, to mingle with that artificially warmed. The objection to all arrangements involving this latter peculiarity is, that cold and warm air do not mix readily; and in this direct plan of admission, cold draughts can hardly be obviated.

The modes of managing the heating by mild hot water and steam, the most salubrious and agreeable of all methods, comprise a most extended variety.

The advantages of steam are the less extent of radiating surface required, the surface being always kept up to 212° F., while hot water cannot be maintained in practice above from 180° to 200°. Steam can also be more rapidly brought into action, the elastic vapor pressing the moment it is generated into the most remote part of the apparatus, while the circulation of hot water is gradual. By increasing the pressure of steam its temperature is increased, so that in very cold and urgent weather, a boiler capable of sustaining the usual pressure may be depended upon to furnish steam of a temperature and consequent power of radiating heat, considerably above the boiling point; for example, under a pressure of one and a half atmospheres, or 22 1-2 pounds to the inch, the temperature of steam is 240° F., under two atmospheres or 30 pounds, the temperature will be about 250°, still short of any scorching liability.

The advantages of warm water are, that its circulation goes on long after it is below the boiling point, which accommodates its action to the moderate demands of certain seasons.

It is again necessary to refer to our Appendix for a recapitulation of many of the practical details connected with these forms of heating and resulting ventilation, as well as for tables indicating the extent of the respective apparatus to produce a given result.

III. We find as the next common characteristic of modern ventilating arrangements, some method of diffusing the air, or spreading and breaking the entering current into divided streams, instead of permitting its ingress at a single point or in few openings, which when it is cold form unwholesome draughts, and when heated are equally uncomfortable and deficient in uniformity of condition, failing to give an equalized, homogeneous atmosphere of the proper character; nor does the column of air mingle with that present in the apartment.

Dr. Reid introduces what he terms a *mixing chamber*, under the apartment into which the air is to be admitted as it enters the reservoir; the current from the heating apparatus impinges against a flat surface placed a short distance above the orifices of admission, which he terms a *deflector*, and which throws it horizontally. This destroys its tendency to enter unequally at different points and aids its admixture with cool air, admitted to temper the medium as required. From this reservoir it is admitted by a vast number of small orifices, as we have seen, and is still further divided by a porous hair-cloth carpet. This method of making a hot-air reservoir under the whole room or by channels in various parts of it, and small openings through the risers of steps, beneath the seats, and similar unoccupied places, is quite general in these edifices, where sudden changes in the numbers of those present demand a rapid adaptation of temperature. The diffusion, as we have also seen, is occasion-

ally effected by reversing the current of air as it enters at the ceiling, by the action of a lively draught from near the floor, and thence proceeds upward into the attic, or descends perpendicularly to a common flue in the cellar.

Several simple experiments demonstrate how little the passing currents can be relied on for an admixture of the fresh air and warmed supplies. The stream of air admitted at an opening in the wall, can be clearly traced by a lighted candle at both its upper and under margins, till it strikes the top of the room and thence to its place of escape. Or we may notice how slightly the motion of persons passing about a room, or dancing with considerable activity, occasions any waving motion of the candles. Still more is this exemplified in the imperfect method in use in our hospitals for the insane, where a current of hot air enters and escapes without removing that lowest test of impurity, recognition by the olfactories.

IV. Another, and by far the most important essential, which we find in our various adduced illustrations of scientific and successful ventilation, consists in the invariable provision for some active, continuous, controllable, motive power, by which a current of air is maintained through the occupied space. This power may be arranged to exhaust the vitiated stratum, and thus have the partial vacuum filled with pure supplies through atmospheric pressure, or its action may be to propel in the fresh air, driving it before that already respired and depraved.

This mechanical provision we have found to con-

sist of various contrivances, acting in both these modes and on different principles.

The motive force is derived from the rarefaction of air by a fire in some portion of a tall shaft or chimney, under a variety of modifications all involving the same principle, the ascent of rarefied air and its consequent tendency to produce a vacuum, and all effecting the same result but adopted as economy, convenience, or caprice may have dictated.* We have seen the fire sometimes at the lower extremity of the shaft for the final escape of foul air, the flues turning their draughts received from all quarters under and around a fire-grate; sometimes the fire is arranged towards the middle so as to be fed from the very apartment ventilated, and more frequently still in the attic. The fire employed as a motive power is at times expressly for this end; at others it is that used for heating and other purposes; or the first of these methods may be relied on in summer, the latter in winter. The foul air may be turned directly into the chimney or smoke shaft, or into a flue contiguous to it, or a succession of foul-air flues communicating with different apartments may surround the chimney flue as a centre.

We find in many of the recent applications, that the foul-air flue is carried up in contact with

* For some illustrations of ventilating shafts, as respects the position of the fire grate, see Fig. 12, Pl. II. which explains itself. B represents the chimney shaft, C the fire, A the main foul-air flue from the inhabited apartments, D the door to feed the fire, E the ash pit. In the right hand diagram, the smoke passes up in an interior funnel or cast-iron pipe, and the air of combustion is admitted from the outside, instead of being taken as in the other examples, from the foul-air drain.

the smoke chimney until a point is reached at which no more collateral flues enter, when the *withe* or partition is left out. The expansion and ascent of the smoke and vapors aid in increasing the rarefaction below.

Occasionally a large mass of chimney flues, built to serve many fireplaces in the same house, has been replaced by a foul-air flue, and a central cast iron smoke flue, with lateral elbows to supply the fireplaces, has been introduced. The ventilating connections are made from each room in the vicinity, from top or bottom as preferred.*

In constructing chimnies for receiving foul air with the fire within them, it is hardly necessary to observe, that a greater power will be obtained by having them of circular area and of a conical shape or gradual taper, as the ascending current as it rises, diminishes in density, and eddies naturally diminishing its exhaustive power are produced. The amount of rarefaction and consequent draught will depend of course upon the size and length of the chimney and the amount of fire which may be in combustion.† These are susceptible of a

* Appendix C.

† The use of chimnies already in operation for other purposes is frequently adapted to valuable ends in ventilating. A few years since, a long building in Glasgow, divided into tenements for five hundred workmen, was from its dirty and ill-ventilated condition, frequently visited by fever in its most fatal types. The superintendent of the mill to which these dwellings were attached, placed a large iron tube along the whole range of these houses, one end of which was closed while the other was built directly into the chimney shaft of the engine. At proper places in each house, tin tubes, an inch and a quarter in diameter, extended horizontally and were made to present an open extremity over the bed of each room. The register, closing the chim-

certain approximate calculation, the elements of which have been often theoretically demonstrated.*

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ney of the engine, was so connected to the fire damper, that on stopping the work, the valve was opened, and of course an active current of air was drawn from each room, to be replaced with presumptively purer supplies.

Since this powerful ventilating arrangement (considering its size of pipes) was provided, — which is described in Ure's Philosophy of Manufactures, p. 394, — these factory houses have been free from fever.

It is stated in the report of the Health of Towns Commission, that the Glasgow Fever Hospital is ventilated by a similar arrangement of pipes of a small calibre opening over each bed. While such arrangements are worth recording, as illustrating a principle, or even an ingenious adaptation where more proportionate aids are impracticable, it is hardly necessary to suggest that so small an egress pipe, and the absence of any provision for a proper renewal of the air withdrawn, are incompatible with the idea of any scientific ventilation.

There are also many instructive examples, arranged by ingenious persons, of connecting the seats of water closets with unemployed flues in the chimney stack producing a lively current downwards and totally nullifying any offensive exhalations.

I have been gratified to observe in a popular and wide-spread agricultural periodical some time since, plans for cheap farm houses, embracing a costless, simple, and efficacious provision for removing the foul air and dampness of cellars. It is well known to every practitioner in farming districts, that the cellar is usually the store house of many of the animal and vegetable products of the farm, and becomes, from their slow decomposition, the source of endemic fever, as well as of unpleasant effluvium. In the diagrams referred to, a single flue is carried up between the smoke flues and opening with these at top, while below it opens into the cellar. The constant heat of culinary operations and other purposes communicated to the air flue produces a current easily controllable by a lid or valve hung on hinges. To prevent the freezing which would result from the cellar being supplied with the external air in certain extremely cold periods, an opening into the kitchen might be necessary. The principal call for an active purification is, however, towards spring, when the danger of frost is least pressing.

* The principle and methods of calculation of the draughts of chimnies heated directly or by contact with smoke flues, in producing a ventilating or exhaustive suction of vitiated air, are plainly shown in Dr. Wyman's Treatise and Mr. Hood's work.

The primary force is the difference in weight of air, occasioned by the heat. Air as well as other gaseous bodies is subject to the law, that each degree of heat added from 32° to 212° F., increases the volume 1-480th.

"If this column of air [in a ventilating chimney] be ten feet high, and have its temperature raised 20°, then it will expand 20-480ths, or 1-24th of its bulk; so that its specific gravity would be diminished, and it would require a column of air ten feet five inches high, to balance a column of the

2. Another mode of obtaining an exhaustive power consists in a rarefaction of the air in the

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external air ten feet high, when the temperature of the latter is 20° lower than that of the former. But as the height of the heated column is limited by the height of the tube or chimney, which we suppose to be only ten feet high, the colder column presses it upwards with a force proportionate to this difference in weight, and with a velocity equal to that acquired by a body falling through a space equal to the difference in height, that two columns of equal *weight* would occupy, which in this case is five inches. Now, the law of gravitation is this: — that the velocity of descent is relatively as the square root of the distance through which the body falls; and as a body falls 16½ feet in a second (or sixteen feet neglecting the fraction), the velocity will be, agreeable to the well known law of gravitation, equal to eight times the square root of the height of descent, in decimals of a foot; or $2\sqrt{g\,h}$, when g is the distance through which a falling body descends in one second of time, namely, 16.09 feet, and h the height of the descent.

In the case we have supposed five inches is the height of the effective descent of the heavy column of air. This fall of five inches is equal to .416 of a foot; therefore, by the rule, $2\sqrt{16.09 \times .416} = 5.174$ feet per second or 310 feet per minute, will be the velocity with which the heated column of air would be forced through the tube or chimney under the circumstances we have supposed. If therefore the tube were one foot square, there would pass out three hundred and ten cubic feet of air per minute." This rule, however, would be subject to the modifications of friction, curvature, chemical changes, &c.

In practice, after all, the height and dimensions of a chimney for producing a ventilating current, must be reached experimentally; for the many qualifications and modifying circumstances would prevent any calculation from being of direct utility.

The ventilating chimney of the houses of parliament with which Dr. Reid's experimental trials have been made, and which was equal to a supply of thirty or forty cubic feet of air per minute to its thousand persons, is one example. This chimney was one hundred and ten feet high, twelve feet diameter at base, and eight at top. In the ventilation of the Butler Hospital for the Insane, calculated for about one hundred and fifty persons, with a downward ventilation in all three stories and to an exceedingly thorough extent, it was expected that the smoke flues of the kitchen, bakery, steam engine for pumping, and in winter that of the boilers for generating the steam for heating — the whole carried up in a flue occupying twenty feet area, to a height of about seventy feet — would have, by contact with flues of about the same area and of the same elevation connected with the vitiated air flues, produced a perfectly certain and adequate effect. At least this was the judgment of some of the most competent English engineers with whom I conversed on the plan.

eduction or foul-air flues, by means of heat from radiating surfaces of pipes or plates within them,

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Precisely this original arrangement is to be carried out in the new Asylum for the Insane at St. John, New Brunswick.

As a general rule in modern styles of architecture, it will rarely be found that a central chimney need be carried higher than good taste would permit, in order to effect a thorough ventilation. For in the event of its proving on any occasion or at any season not equal to its expected duty, a little additional force, in the shape of an anthracite coal fire at the base of the ventilating chimney would meet the emergency.

Where many rooms are to be ventilated, as in a hotel, of various sizes, it would be found best to arrange the main stacks of chimneys so that several flues for ventilating should surround that into which the smoke of the constant and large fires for cooking and similar purposes is received. Then at the base of those connected with apartments which might be called into use under occasional exigencies, as halls, large reception rooms, &c., should be an opening to permit more exhaustive force to be added. Or even the steam of the boilers, now in almost universal use in large establishments, could be directed into a principal foul-air flue, according to Mr. Bell's system. At the McLean Asylum the waste steam of the small engine is turned into the foul-air flue of two of the least ventilated galleries. The noise which was feared as a serious objection proved quite inconsiderable, and the amount of upward current was probably increased tenfold when the engine was in operation.

In another instance at that institution, an underground horizontal flue was run from beneath the seat of a water closet, from which it was impossible to effect a removal of foul air by other methods, to an unused flue in the kitchen chimney stack, a distance of twenty-five or thirty feet. The effect was most decided; even the smoke of the most fœtid substances burnt in the pan of the closet, never ascended above the level of the seat. As a general rule, it is undoubtedly best to make a ventilating chimney as high and as large as is consistent with economy of space, cost, and symmetry of exterior. In school rooms, counting houses, lecture rooms, and the like, double the extent of the smoke flues may be expected to accomplish the ventilation.

It would seem to be proper to make some reference to one objection to the use of exhausting chimneys in ventilation which has attracted sufficient attention to be at least thoroughly refuted, — an attention not so much due to the soundness of the objection, as to the scientific character of the objector. Dr. Ure, the chemical philosopher, in his Dictionary as well as in his parliamentary evidence, and in announcing his views in other places, has asserted the opinion very confidently, that the exhaustive methods in ventilation produce a rarefaction of air most deleterious to health. In his impatience at Dr. Reid's experiments, he observes: "These curious effects clearly illustrate and strongly enforce the propriety of ventilating apartments by means of condensed air, and not by air rarefied by large chimney draughts,

containing steam or hot water. We have found these as long since as Dr. Desaguliers' trials in England in the last century, and we still notice them in some of Mr. Sylvester's latest improvements, and recommended by him in the great Parliament-House undertaking.

The forms of calorifers or hot-air furnaces, in which the tubes admitting the air below and allowing it to escape above at a high temperature are enveloped in the burning coals and attain a red or white heat, would be exceedingly convenient to effect this object, especially where no fear existed of fire being accidentally produced by the dropping of coals below, as might occur when wooden flues entered the ventilating chimney. Here the air furnace or calorifer, placed within the shaft and fed from without, would allow the air to pass through its heating pipes with great velocity. It is, in fact, all the use that such unhealthful and overheating appliances should receive. In one of our figures an early application of this plan is delineated.*

In the costly Maison Royale for Lunatics, at Charenton, we have seen that the hot-water pipes

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as has hitherto been most injudiciously, wastefully, and filthily done in too many cases."

The simple fact that the diminution of atmospheric pressure through any of the exhaustive methods, is stated by Mr. Hood seldom to exceed 1-100th of an inch of the barometer, and generally does not reach 1-200th of an inch, while the ordinary meteorological changes of this instrument, still unfelt upon the animal economy, run through more than two and a half inches, demonstrates the exceedingly "thin air" of Dr. Ure's hypercriticism.

* Fig. 5 and 6, Pl. I. are representations in elevation and cross section, of a calorifer long since employed to produce eduction. *n* is the reservoir for

are carried longitudinally through the escape flues, to induce the escape of foul air, in their way towards the points where they are expanded into suitable radiating surfaces. One of the applications of Perkins's high-heated pipes of water accomplished this result. The direct pipe which connected the radiating coils in different stories was carried through an upright flue, which had openings made to allow the air to be drawn in at suitable points near the floor to the ceiling as preferred. A stop-cock was placed near the point where the horizontal pipe left the perpendicular which cut off the circulation designed for heating, but still left it free in the pipes within the flue. This of course secured a ventilation in the season when it was too warm for artificial heat.

In the New Jersey State Lunatic Hospital, a discharge current is to be promoted by a steam pipe between one and two inches in diameter running the whole length of the foul-air flue perpendicularly. It will probably be found expedient to fit a jet apparatus to the upper end of this pipe and secure an upward draught on this recent application.

The rarefaction in the eduction flues is produced also by chandeliers suspended just below the inferior openings, as in the French Chamber of Peers, and in most modern theatres where a systematic

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feeding; *k*, the fire grate; *a a*, the tubes, surrounded by the flames; *c*, *c*, *c*, *c*, tubes which bring the foul air from various places into the common box, *d*, through which it ascends into the chimney, *o*.

ventilation is provided. Single lamps or Argand burners have also been hung within flues to meet particular emergencies, but would be too expensive a method for any extensive employment.*

3. The provision of a chamber, or an expansion of the foul-air flue just over the apartments to be relieved of their vitiated contents, which shall be supplied with a portion of the hot air generated for heating purposes in the basement below, is characterized by Mr. Brande in his Parliamentary testimony in 1835, "as the most generally and conveniently applicable method." Its modus operandi is obvious; the air below rushes up to fill the space above, in which the air is of less density.

4. Centrifugal or fan wheels acting either as exhausters to suck out vitiated or propellers to force in pure air, — which conditions of their action are respectively determined as before indicated by the circumstance of their centre or their periphery being connected with the entering or exit channels,— have been used from an early period and with satisfaction in some of the greatest examples, as is still the case in the French Chamber of Deputies. The formulæ by which the efficiency of these valuable machines may be calculated will be found below.†

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* Fig. 7, Pl. I. represents the chandelier *a*, surrounded by the metallic cone *b*, which is inserted into the shaft *c*, into which the foul air from various points is turned through the boxes *o* and *n*, and into the open air by the cap *u*.

† The method of determining the efficiency of the rotary fan is thus given by Mr. Hood: —

"The mean velocity of the portion of the vanes of the fan by which the

5. The employment of exhausting and propelling pumps and bellows is still maintained very efficiently in certain large establishments, an example of which we have introduced.

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air is discharged, is about $\frac{7}{8}$ of the velocity of the extremities of the leaves; but owing to the inertia of the air, there will be a further loss in the velocity of the issuing current, increasing with the greater velocity of the vanes; so that, under ordinary circumstances, the current will be discharged with a velocity equal to about $\frac{3}{4}$ of the velocity of the extremity of the leaves. This velocity in feet per second, multiplied by the area of the discharge pipe in square feet, will give the number of cubic feet of air discharged per second.

To estimate the force necessary to cause the rotation of the fan, the following method of calculation, founded on the ordinary mode of estimating steam power, will be found sufficiently accurate: —

Suppose the effective velocity of the vanes of the fan to be 70 feet per second, and the sectional area of the eduction tube to be 3 square feet, then $70 \times 3 = 210$ cubic feet will be the quantity of air discharged per second; and this number, multiplied by 60, will give the quantity per minute. As a cubic foot of air weighs 527 grains, there will be about 13 cubic feet of air to a pound; therefore $\frac{210 \times 60}{13} = 969$ lbs. is the weight of air put in motion per minute, with a velocity of 70 feet per second. The height from which a gravitating body must fall, in order to acquire a velocity of 70 feet per second, is $\frac{70^2}{64} = 76.5$ feet; which, multiplied by the number of pounds weight moved per minute, will give the power necessary to be expended, in order to discharge this quantity of air at the stated velocity. And this product divided by 33,000 (the number of pounds weight that one horse will raise one foot high per minute), will give the amount of steam power required. Therefore $\frac{76.5 \times 969}{33,000} = 2.24$, or nearly $2\frac{1}{4}$ horse power, will be necessary to discharge the given quantity of air at the velocity stated."

Fig. 22, Pl. II., represents an improved form of the fanner, as compared with the construction of Dr. Desaguliers and others. The case and the interior wheel are not concentric: *o*, *o*, is the case; *a*, the axis; and *c*, *c*, *c*, *c*, the vanes; *d* is the channel through which the air is forced in the direction of the arrows; *x* marks the central openings in the ends of the case, for the induction of the air.

In the application of fan wheels for ventilation, it must not be forgotten that the quantity of air, not its velocity and pressure, is the object sought; the reverse of what is required in blowers for facilitating combustion. A speed of 3 to 500 revolutions per minute, is as much as can be maintained without an unpleasant noise; and, in view of all the loss of power in gearing, &c., the diameter of the fan should be calculated for a speed, certainly within that named.

The curvilinear blades of some modern varieties have no superiority sufficient to counterbalance the mechanical disadvantages.

The reciprocating action and friction of packing, as well as the loss of power resulting in most forms from *wire drawing* the air, as it is called, that is, forcing it through a diminished aperture, prevent this from being as economical a method of using power, as the centrifugal wheel. There may, however, be situations in which it may form the most desirable apparatus.*

Dr. Arnott, in his testimony before the Health of Towns Commission, observes that when he visited Glasgow in company with Mr. Chadwick, there was described to them a vast lodging house in connection with a manufactory, in which fever was formerly very prevalent, and which was in consequence ventilated by making an opening from each room into a duct which terminated in an air pump. The supply of pure air, he says, obtained by that method of ventilation, was sufficient to dilute the cause of disease, so that it became powerless.

6. The use of the steam jet, the latest and probably the least troublesome and most certain of the

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* The effective performance of blowing cylinders for this purpose, under a given amount of moving power, is readily calculated.

"Suppose a ventilating pump three feet square and five feet high, and that the piston makes twenty-five double strokes per minute, each four and a half feet long. In this case, 2025 cubic feet of air per minute will be discharged; and if a valve for its discharge be ten inches square, the velocity of its discharge will be equal to 48.6 feet per second. This quantity of air, reduced into weight, will be $\frac{2025}{13} = 155$ lbs. put into motion every minute, at the rate of 48.6 feet per second; and therefore, we shall have $\frac{48.6^2}{8^2} = 36.9$ feet, as the height from which a gravitating body must fall, to obtain the velocity of 48.6 feet per sec., and $\frac{155 \times 36.9}{33,000} = .17$, or one-sixth of a horse power, as the necessary force to discharge this quantity of air, at the stated velocity."

It will be recollected, that a horse power in dynamics is 33,000 pounds, raised a foot per minute.

methods of inducing an exhaustive current, has been described in the account of the new Houses of Parliament.

Steam has been before used in locomotive engines, to produce the prodigious draught needful in their rapid combustion of fuel, by the escape pipe entering the chimney.

The only exact statement of its efficiency I have seen, is the calculation of Mr. Faraday, that with the steam at thirty-two pounds pressure to the inch, or about two atmospheres, a point not unusual in what are deemed *low pressure* boilers, air is removed to the amount of two hundred and seventeen times the cubic feet of steam escaping.

The jet is arranged in the simple and economical circular cap, such as constitutes a very common form of gas burner.* No particular length of shaft is required into which the steam is to be liberated, and the foul air is received below.

7. The use of revolving screws of various forms, to exhaust and propel air as they may be turned one way or the other, requires to be mentioned only to put those disposed to invent new things on their guard and lead them to examine what has been hitherto done.†

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* Fig. 24, Pl. II.

† Dr. Reid observes that the Archimedean screw has been extensively used in Belgium and elsewhere, as a substitute for the fanner or centrifugal wheel. Several years since, two gentlemen of nearly the same name, — Mr. Combe of Leeds, and M. Combes of Belgium, — made an improvement in the screw simultaneously, to which Dr. R. is inclined to give the preference over the preceding varieties. Fig. 23, Pl. II. represents one of the varieties of this form. The *double screw* is convoluted spirally around the axis *c*,

V. Our last common essential is in the power of controlling and regulating the operation of the apparatus, producing the ventilating change. It is obvious that the various circumstances of numbers, character, and detention of the occupants, and the state of the external air, must require a command over any apparatus or method, to fit it for proportionate action. An extent of warming and ventilating adapted to a full Parliament of eight hundred or a thousand persons, during an interesting and exciting debate, would be widely unfit for the faithful few who might remain after it was over to plod over the dull details of private bills or financial statistics.

So the amount of air which would be fully adequate to the ordinary wants of a hospital, would be wholly unequal to a pure and salubrious atmosphere in the parts devoted to fever, small pox, gangrene, and the like. The galleries of the convalescent or cleanly patients of a lunatic asylum require an insignificant quantity of fresh air, compared with those occupied with the demented or maniacal, lost to personal propriety. Apartments occupied for a few hours or a single hour, like lecture-rooms, churches, and the like, would permit a much less energetic provision of machinery than if the sessions were protracted, as in courts of justice, schools, and legislative halls, while the

which is turned by any motive power at hand. A shifting of the gearing so as to reverse the direction will change its action from propelling to suction, at will. The arrows show the respective directions of the screw and air currents.

latter have intervals of repose unknown to prisons, hospitals, and other places of detention, where the inmates are present through the day and night.

All these adaptations are to be provided for, and in most of our examples we see the most abundant means of meeting every emergency. The tables of the temperature of the House of Commons and the prisons on the Model Plan, (and this element perhaps expresses the renewal of air in those instances where the only heating is in the air of ventilation,) demonstrate the accuracy to which the adaptation is brought. It is hardly too much to say, that in them the quantity, the hygrometric condition and temperature of the air are susceptible of as much exactness, as the provision of food and drink.

In the recent ventilations of the principal Parisian edifices, a contract providing for all the requisites of a perfect system is entered into, and even the precise sum for the annual support of these arrangements is agreed upon. In Péclet's complete treatise, various specimens of the accuracy to which this part of the detail has arrived are presented. A practical tradesman agrees to furnish without fail, a certain number of cubic feet of pure air, per minute, at a given temperature, at a specified sum.

A maximum supply may be contracted for, while the power of reducing this to a less degree required by the circumstances of the case, is placed within the ready control of a moderate degree of intelligence. It is of course not within the com-

pass of possibility, that there can be any self-regulating means of supplying heat or air, where the demand is continually varying. Hence all systems on any considerable scale, must require a constant supervision, and management on fixed principles, and not as suggested by the capricious and uncertain calls of individuals of peculiar constitutions and habits. Much of the obloquy and ridicule which have fallen upon Dr. Reid and his ventilating trials, has been owing to the impossibility of satisfying men, whose requirements are widely variant or even diametrically opposite. The rubicund four-bottle country squire and the exsanguined and aged ecclesiastic, cannot be measured by the same scale without one or the other suffering. An approximation to the average necessities is all that can be hoped for.

In most of the provisions of motive power, the controlling means are obvious. Valvular contrivances, known as registers or dampers, are equal to the smaller adaptations or temporary emergencies. The amount of fire or steam, or other heating means, when these constitute the moving force, the velocity of the fan-wheel or other apparatus involving the same principle, are all readily adapted to a very low minimum. If in the original arrangement, a plan is carefully calculated for a high maximum, as measured by the number of cubic feet of air thrown in or drawn out, there is little difficulty and usually but little wasted expenditure, in working the apparatus at a much diminished activity.

The various modes of effecting the same results in ventilation, are by no means to be considered as antagonistic or even competitory to each other. An abstract preference cannot be properly yielded to one at the expense of the others, as an inferior machine in the arts yields place to one of an improved design. The selection of a system or of peculiar features of several systems, will depend entirely upon circumstances. The degree of perfection sought in some cases, as in the plans of Parliamentary Halls and certain hospitals, demanding the utmost of hygienic completeness or even luxurious provision within reach, may be allowed to overrule all considerations in the points of cost of construction or of maintaining in due performance.

The occasion as determined by the extent of numbers to be provided for, their character, and their continuance in the same place, is also an important element in deciding the question. A library, a church, a hall of assembly for concerts or lectures of an hour, a school where a small portion of day-time only is spent, a legislative hall of uncertain numbers and length of sessions, manufactories of high temperature, offensive processes and crowded population, hospitals for numbers of the sick or insane, equally pressing at night as at day, all constitute in an increasing ratio instances of the inequality of the extent of provision required.

The presence or absence of an available power of steam or water to give motion to ventilating ma-

chinery, may give a preference to certain arrangements, entirely out of the question under other circumstances.

To illustrate these modifying conditions, by particular instances: Were it determined to ventilate a large already finished hall for lectures, concerts, or other evening occasions of an hour or two duration, the simple rotary fan, propelled by the labor of a man, arranged in the garret or cellar as it might be preferred to inject fresh or exhaust foul air, would involve least expense, least complexity, least disturbance of work already completed, with a sufficiently complete performance of its office.

If, again, we were required to provide perpetual, certain, and copious changes of air for a large hospital for medical or surgical diseases or for the insane, or for a cellular prison, where no power would ordinarily be at hand, little doubt can exist that the lofty chimney shaft, urged by a coal fire or the late adaptation of the steam jet, would be the most reliable as well as the most economical. Here again, circumstances would decide which modification of the many plans having the tall shaft for their motive power should be selected.

Whether the flues for foul air should surround the central smoke flue or enter at its foot under and around its grate, whether the foul air flues should proceed upwards or descend to their horizontal main channel, whether the common fires for culinary and heating purposes should be relied upon,

or a separate fire be provided, and many inferior points would all be decided by the position of each case. For some hospitals, hotels, or prisons, the kitchen fires might prove adequate; for the larger class of hospital edifices, an independent shaft of lofty height would be demanded.

Again, to purify the populous halls of a factory or other building for the purposes of the arts, where from the aggregation of the employed or the nature of the processes, a lively and energetic ventilation would be requisite and where abundant motive power is at hand ready to be used as long as the necessity obtains — that is, by daylight only — the fan wheel or wind cylinder in some of their varieties, might be more expedient.*

Where the steam engine or merely the steam boiler for heating is found, as is the case in most of the immense modern cotton factories of New England, the jet of steam thrown into the eduction channels might be the most useful mode.

A downward ventilation, that is, from or near the floor of the room, requires more power and consequently is at some economical disadvantage, by the reversing of the naturally ascending movement. But in halls where the dust raised by the feet of an excited auditory may better be kept from their lungs, — in insane hospitals, where the inlets if accessible may be polluted, and indeed are con-

* The ventilating fan is said by Mr. Bernan to be much used in the manufacturing districts of England, for drawing off the heat, moisture, and filamentary dust of the rooms.

stantly liable to annoying depravations from the use of tobacco or other filthy practices, these become harmless from the current of air being drawn outwards, not inwards over the offensive matters;— in legislative halls and court houses, where according to the custom of our country an infusion of the same vile weed is scattered over the floor so profusely that as its vapor rises in universal solution, no man with clean interior can hope to escape imbibing an equal share of the offensive fumes, a draught downwards with a pure admission of air from a point overhead, is certainly a great desideratum. Indeed, the plan of a united upward and downward ventilation at the same time, to meet some exigencies in the arts, is recommended in some modern treatises. So refined and nicely equilibriated an adjustment as this would seem to require, could scarcely be maintainable in practical application.

It is thus obvious, that in deciding upon the details of any plan, the general principles of the art must be well understood and applied in view of all the circumstances of the given case.

For a numerous proportion of the exigencies which present themselves in every day life, such as school-houses, poor-houses, lyceums, and other halls, vestries, court-houses and small county prisons, my impressions are in favor of main foul-air flues, passing up in contact with smoke flues in constant use; or in case of hot air furnaces being employed, the foul-air duct should be between both these warming sources, the *withe* or dividing partition

between the smoke and foul-air flues being removed at the attic floor to augment the draught.

For summer use, in case the kitchen or other fires are diminished or discontinued, an opening for a fire with a grate should be made at some convenient point in the foul-air flue. The point for a moderate fire of some slowly burning fuel for this purpose ordinarily the most convenient, is in the cellar where the furnace is, but may be in the attic as figured in the plan of the Pentonville Prison, or even in the apartment itself as delineated in the French school-house.

The main foul-air flue, placed either within or just outside of the apartment, may be pierced for the admission of vitiated air at such part as is deemed most expedient, in accordance with the system of upward or downward ventilation determined upon.

If the supplies of warm or fresh air are from below and admitted at the floor, the foul air would properly be drawn off at the ceiling, either by a single opening as large in area as the tube would permit, or by lateral flues running horizontally across, around, or just above the ceiling, (a box-like cornice for example,) and apertures to equal the flue-area made in these at convenient distances.

If the heating is provided by flues opening high or by radiating pipes or stoves, the foul air may be drawn off at a similar opening at the floor of the room into the foul-air duct.

Or if it is decided to protect the lungs from the

dust and vapors by a downward current, horizontal flues beneath the floor should extend from many parts of the room, with perforations into them at every point protected from closure, arranged as respects size and frequency with a constant regard to the comparative indraught, at different distances from the upward flues.

In a climate where so much wind exists as in ours at certain seasons, I would not wholly discard the use of turn-caps, for aiding in admitting and discharging air. These, of course, are merely auxiliary measures, calculated to save some expense in motive power; as no one acquainted with the demands or completeness of modern ventilating arrangements, would even think of relying exclusively or mainly, upon any contrivance depending on so proverbially inconstant a power as the wind. For, as before intimated, there are occasionally weeks of most imperious demand, when the cowls or caps are actually worse than merely useless.

The cast-iron *plenum* and *vacuum* revolving cowls constructed by Mr. Mott of New York and used in the public schools of that city, and the fixed cap with a conical border, originally constructed in 1788 by St. Martin (the best form of which is that recommended by the American Academy of Arts, in the Report heretofore referred to), appear to me to comprise most that is attainable in that multitudinous class of contrivances, in the cheapest and most durable form.

Our last subject for consideration is the quantity of change of air which is necessary or expedient.

In arranging the ventilation of any given habitation, how many cubic feet of air should be thrown in and taken out, in order to secure the full advantages of health and comfort, dependent on purity of the respiratory medium?

In estimating the quantity of air required for each pair of lungs in a given time, neither chemistry nor physiology, as before intimated, affords us any aid. Were the question — how much air is needful to save from suffocation? the researches of the chemist as to the decomposition of ascertained averages of the amount of air in the lungs, would be sufficiently precise and reliable. But when we consider that the comparatively minute taint or imperfection from the effect of respiration, is capable, under most extended dilutions, of producing an undoubted deterioration upon the hygienic and sanatory qualities of the atmosphere, we shall see how little any chemical alterations bear upon the infinitely more delicate, and as it were, spiritual depreciations. If analytic chemistry is still too coarse in its investigations to be able to detect any difference in the pure mountain breeze, and the stifled contents of the small-pox or fever hospital, — if the mere senses can detect repulsive additions which tests do not recognize or verify, it ought not to be blamed for failing to throw light upon so infinitesimally small dilutions of respiration. We know by the abundant proofs suggested heretofore, amounting almost to

demonstration, how momentous the inappreciable additions are, as respects disease and death. If no scientific acquisitions enable us to find out these important relations, neither do our senses give us warning or defence. A single respiration from the lungs will produce a medium in which a candle will not burn; yet within my own personal observation, Irish laborers have continued at their work at the bottom of a well, hours after a light had been extinguished.

A depraved taste as to the quality of air can be acquired and maintained as well as in regard to food or water, of which so many examples will occur to almost every one. One of the oldest and most honored of our Supreme Judges, who has been seated days and years in court-houses filled with the most polluted and irrespirable atmosphere to all unaccustomed lungs, avers that he recognizes no defects in it, and regards all call for ventilating measures as quite superfluous, on his account!

We are then driven for the solution of the important question of quantity, to the result of experience, a test in a single case being quite too uncertain and intangible, but when reduced to the formulæ derived from the conclusions of many investigations, must form our standard, because it is the highest evidence the case admits.

Commencing with the lowest minimum proposed by the leading authorities, we shall find as we reach the highest maximum a wide range. Dr. Arnott considers two or three cubic feet a minute, as all that need be charged to each person. Mr.

Tredgold fixes his average at four. Mr. Hood, a recent very accurate and practical writer, observes, "that in all public buildings and rooms of dwelling-houses, a quantity of air equal to from three and a half to five cubic feet, for each individual the room contains, must be changed per minute, in order to preserve the wholesomeness and purity of the atmosphere." Mr. Toynbee, F.R.S., an English surgeon, in a lecture recently delivered before the Institution of British Architects, fixes upon ten cubic feet per minute, or, what he proposes as a unit of measurement, double the contents of a man's body, as required to meet the demands of respiration.

Dr. Reid declares that the provision of ten cubic feet to each person, per minute, in the House of Commons, proved to be a minimum which was generally recognized as below the natural wants of the system, and declares it as his determination, to adapt his ventilating power to the work of introducing not less than from twenty to sixty cubic feet per minute. In the French Chamber of Peers, twelve cubic feet are furnished. At the Pentonville Model Prison, the arrangements are fitted to turn in from thirty to forty-five cubic feet.*

With data like these, it would not perhaps be an

* The velocity of air in currents and in flues is measured, and its quantity in cubic feet determined, in various ways. Anemometers or wind-gauges, indicating the strength of the current by number of revolutions, or raising weights, or contracting a spring, have been constructed. The floating of flocculent particles or dense smoke, enables the speed to be noted by a stop-watch, through a given length of pipe or flue. Paper covered with a paste of starch, receiving a current of the vapor of iodine liberated at the other end of the channel, is struck instantaneously with a deep blue tinge. The interval is measured by any time-keeping instrument.

unsafe estimate to consider the quantity of supply demanded to maintain a due fitness of the air for respiration, at from ten to twenty cubic feet per minute, to each person. Circumstances may considerably influence any general conclusion like this. For example: in large rooms to be occupied only for short periods, like churches, it must not be overlooked that there is at commencement a reservoir of pure air in the space above, which is to be subtracted from the amount to be obtained artificially. Mr. Péclet calculates that each person fills $\frac{33}{100}$ of a metre, or about a foot of area on the floor. To contain a supply of air for a session of one hour, a room must then be fifty-four feet high, and in this ratio.

Again, in some cases of exceedingly uncleanly inmates or offensive diseases, the quantity of change demanded to maintain an atmosphere pure to the olfactories, must be more than the amount for merely respiratory purposes. Generally the contrary will be the case, and it will be found that the adequate supply for the lungs will prove sufficient to maintain a fresh, elastic, and unrecognizable condition.

On bringing to a close this brief consideration of a most important art, I would hope not to transcend the bounds of a respectful deference, in urging upon the members of this association the claims which the various branches of sanatory and hygienic reform and especially that of ventilation have upon their attention and investigation, particularly in their relations to the population of New England, at our day and *in futuro*. Have not these

been emphatically the omitted of the great questions of professional culture, the world over? Pathology, therapeutics, the profoundest secrets of healthy structure and of diseased change, have been pursued with a zeal, perseverance, and success so extraordinary as to mark our age as that of critical exactness and refined observation. The causation of disease, the prevention of the morbid influences in operation prior to either functional or organic response, the recognition and counter action of the subtle causes of commotions set up in the animal economy to expel or to contest with some morbific source of mischief, have necessarily been deficient in that element of numerical and specific exactitude, which commends itself to the accumulator of truths, and may therefore perhaps have been somewhat ungracious to the tastes of our time. These have consequently been rather allowed to fall into the category of loose speculations, and have been regarded as topics of a light and popular literature scarcely of the profession,—as presenting proper features for the magazine or the lyceum, rather than for the strict persevering research, accorded to other topics of medical investigation. Let it be thus no longer — let the physician claim as his own, these matters primarily bearing on life and disease, and save them from the unhallowed hands of merely popular sciolists, by a profundity and precision of knowledge respecting them, which shall overwhelm all merely superficial acquisitions.

The old world is roused to the consideration of

sanatory reform, by the pressing necessities of the case so urgent as to allow no further procrastination. Its governments have been awakened to the dire consequences in disease, deterioration of the species, and frightful mortality, of a neglect for ages of the laws of health and life, and are preparing to expend with an unstinted hand the stores of accumulated treasure, to redeem themselves and their posterity from the consequences of long perpetuated ignorance and error.

Be it ours to guide a new people, by the lights of past experience, and the world's present science, so as to avoid the same errors and omissions, and by consequence, the same disastrous results.

We are so fortunate as to live at an era, and in a country where, despite the forebodings expressed by the impatient and the desponding that the inroads of empiricism of a thousand names are endangering our profession and the society of our time, the character and judgment of the scientific, the wise, the practical physician are of greater weight than at any former period of the world's history. The throwing off the mere trappings and artificial distinctions of society now in progress in the other hemisphere, long since achieved with us, is only one of the resulting manifestations that mind, cultivated reason, and enlightened conscience, are destined to hold their just influence over the civilized world. Measured by such claims to first rank, by devotion to others' welfare, by abnegation of self, by perseverance *inter labores et tedia*, the followers of the

medical art have no reason to dread diminished consideration, as the world proceeds under its new system.

GENTLEMEN OF THE SOCIETY:

Happy should I regard myself, if I could close my short hour's communion with you, in these words of encouragement, congratulation, and hope. But alas, he that stands in this place, as year succeeds year, must have the melancholy, yet not wholly painful duty, of recalling to the living, the memories, the services, and the merits of the dead. I say that the duty of commemorating those who have passed on before us, is not unmixedly painful; for in the long years of useful labor of some, and in the abundant proofs in the shorter career of so many others more early removed, that

> That life is long, which answers life's great end,

— in the exulting consciousness we feel, that there are still spared so many of the fathers of our calling, who have so long filled the highest places in the public estimation as they have in our hearts, whose influence upon the elevation of the medical profession in Massachusetts, in New England, can be fully appreciated only in after times, — towards each one of whom, as year after year we greet their venerated forms on this floor, the spontaneous ejaculation bursts from our inmost soul, *sero in coelum redeas !*— we cannot feel that we grieve for the fallen of our ranks, as those without many circumstances of mitigation and of mercy.

NECROLOGY OF THE PAST YEAR.

Died.	Admitted.		Age.
1847.			
June,	1845	Albert G. Upham,* Boston,	32
Aug. 5,	1840	John S. Champney, Abington,	51
Sept. 6,	1814	Joseph Kittredge, Andover,	62
Sept. 21,	1819	Anthony Collamore, Pembroke,	60
Oct. 30,	1806	William Porter,† Hadley,	84
Dec. 1,	1844	Alfred A. Lane,* Boston,	39
Dec. 4,	1835	Joseph Moriarty,* Boston,	36
Dec. 10,	1835	Abner B. Wheeler, Boston,	36
Dec. 14,	1811	Jacob Holmes, Leicester,	69
Dec.	1822	Henry Kittredge, Tewksbury,	61
1848.			
Jan. 13,	1846	William W. Billings, Springfield,	31
Jan. 23,	1846	Moses P. Greenleaf,‡ Newton,	30
Jan. 25,	1822	Benjamin W. Hildreth, Boston,	64
Jan. 30,	1836	Henry B. C. Greene, Boston,	47
Feb. 29,	1809	John B. Kittredge,† Framingham,	76
May 6,	1836	Marcellus Bowen,* Boston,	37

	1830	Thomas Fargues, Hon. Mem., Quebec.

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* Died of ship fever contracted in the course of professional duty.

† Retired members.

‡ Died of erythema anatomicum.

APPENDIX.

A.

THE failures of the ordinary modes of endeavoring to introduce a pure atmosphere into buildings and to sustain it under all circumstances, are quite numerous. Although any others than systems with an exhaustive power are considered so obsolete as not properly to come within a treatise on practical ventilation, and have scarcely been alluded to in the body of this work, yet as many persons are yet to go through the trial from necessity or ignorance, a recapitulation of the sources of failure may serve to obviate a portion of an evil, if it cannot be wholly averted.

I. Relying upon the opening of lateral windows. In all temperate and cold climates, glass windows are made to open either by the raising the lower sash, raising the lower and dropping the upper at the same time, or by dividing the entire sash in the middle while it opens from bottom to top on both sides. This last arrangement is known as the French window, and has become quite common in the most expensive class of houses in the Atlantic cities.

It has doubtless been noticed, that in all the superior examples of ventilation introduced, the windows have had no share in the process. They have been considered, as in fact they are made in practice, as fixed immovably. Experience has ever demonstrated that buildings in which open windows are relied upon, are never ventilated at all. In climates like ours, the cold gush of fresh air into a heated room cools, but does not materially change the vitiated atmosphere, while the effect of the draught upon the health is too well admitted to require a moment's consideration. The windows opening at top and bottom, by the sliding of both sashes, may in some cases, as in theory they are intended, permit the air to enter at bottom and the heated surplus to escape at the upper opening. The slightest moving current towards these windows annihilates all hopes of this, and the cold air beats directly upon the heads of the audience or inmates.

Again, during several weeks in spring and autumn in the northern parts of the United States, the weather is in that state in which it is too warm for artificial fires, and too cold or damp, or both, for open windows. Here, of course, is no ventilation. It also often happens in cities, that in public and private buildings, the open window admits odors, sounds, and even insects, to a degree rendering defective ventilation the lesser evil. Our courts of justice are striking illustrations of the difficulty of hearing, from the noise in streets, except at the expense of an atmosphere corrupt enough to hebetate the faculties of judges, counsel, and jury.

The importance of double sashes in economy of fuel and equality of temper-

ature, renders some method necessary in houses of the better class to avoid any reliance upon windows which, of course, cannot be opened for ventilation when so duplicated.

Pleasant as the open window certainly is in our dwelling houses at times in the summer months of our climate, yet it may well be doubted, in these days when the manufacture of glass has become so perfect as to impede no vision and so cheap, in view of all the maladies produced by this the most fruitful of causes, whether that will not be a step of the highest value in "sanatory reform," which renders the window sash a fixture. Certainly the noisome odors, the pestilential vapors, and annoying sounds of large cities, must render supplies of pure air from some other source exceedingly desirable. And in country residences the chilling draughts of windows accidentally or heedlessly left open, inducing a long catalogue of diseases dependent on checked perspiration, and the crowds of disgusting or irritating winged insects ready to approach the evening's light, overbalance the few opportunities of that peculiar enjoyment which the passing current of genial air affords.

It is hardly necessary to advert to the universally admitted fact that the draughts of air, impinging upon part of the person as they do in entering an opened window, are much more pernicious than a complete exposure without the draught. Open flagged and dry walks, open verandas, or even projecting balconies, are accessories to dwellings more than compensating for the opening or sliding sashes, without destroying, as these must do, all hopes of a regular, reliable system of ventilation.

For some important experiments showing the cooling power of windows, and the consequent value of the double sash, the reader is referred to Dr. Wyman's *Treatise on Ventilation*, p. 389.

II. The uncertainty and insufficiency of flues or passages with no other aids, leading from the apartment to be ventilated. Experience the most extended, of this the most common of all modes of effecting this object,— indeed the almost exclusive mode of attempting it in the public institutions of this country,— abundantly demonstrates that it is entirely unworthy of being considered as a true ventilation. Still there is some degree of efficacy in it, and there are various circumstances which influence its value, from its most considerable action down to the point of utter nullity.

Where flues are used to allow the escape of vitiated and foul air, the usual expectation is that the fresh supplies are to be received from furnaces below, from stoves or fires within the room supplied from the outer air into an interspace surrounding the fire, or from steam or water pipes also within it in winter or cold weather; and through other avenues during the rest of the year. The circumstances modifying and influencing the efficiency of foul-air escape or eduction flues, as they have been called, are:

1. *That the flues are of insufficient size.* Almost all persons who make their first experiment in ventilation overrate the effect which the flue will produce, and consequently make it of inadequate dimensions. Sir H. Davy, as mentioned in the text, was invited with a *carte blanche* as to the arrangements and the expenditures, to design a system of ventilating the English House of Peers (the present House of Commons). In his plan the area of discharge was only one foot. In the recent method this was augmented to fifty

feet. Nor was the difference explained by there being a greater motive power in the first case, for the reverse was the fact.

In most of the prisons of this country, both on the Auburn and Philadelphia plan, without now referring to other weakening circumstances, the discharging flues are made of an area of sixteen to forty-eight inches only.

In the insane hospitals, the uniform system, when any has been provided in the original building, has been to make the flues for the bed-rooms, &c. within the brick partition walls, which are a foot or three courses in thickness. The size, then, is consequently one brick or four inches wide, by a length once and a half or twice as great, or from forty-eight to sixty-four inches area, the orifice being perhaps expanded to twice those dimensions. Occasionally flues eight inches square are found in the McLean Asylum; in some hospitals the orifice is covered, for some unknown reason, with a perforated cover of iron, reducing its area to a very few inches, and in other cases a couple of inch holes only are left.

Our court-houses, school-houses, lecture-rooms, and other places of continuous congregation, have been fitted with outlets in this proportion, most commonly occupying the vacant portions of the ornamental centre-piece in the ceiling. This contractedness of dimension also existed with the openings for the admission of fresh air — warm and cold, when any such happened to be provided.

It is not uncommon under more improved methods to see the orifice of the warm air-flue (when the air does not enter in many places or in diffusion), from two to three feet square, and the underground passage for fresh air sufficiently large to allow a man to pass nearly upright to examine and remove any impurity, such as leakage of sewers, rats, cats, and the like, which might contaminate the air.

The discharge-flues are also made larger or more numerous. The principle now seems to be, that as all flues are so readily commanded and diminished by a simple flap or valve register hung on a central point, or by hinges at the edges, and turned by a handle passing through the wall, it is better to construct them of the fullest possible size. If originally made in brick walls or under ground of too limited dimensions, it becomes exceedingly difficult to enlarge them. In designing a plan for the Butler Hospital for the Insane,— one of a class of institutions requiring the greatest amount of ventilation,— it was calculated that the flues would fill the whole central walls, wherein they could be carried perpendicularly or nearly so.

In brick edifices the external wall may constitute flues for some purposes, and their presence increases the dryness of the interior without diminishing the strength of the masonry. In public buildings, unless the exact size is beyond prospect of change, and the internal divisions are as certainly permanent, and the system of heating and ventilation has been unchangeably determined upon, no loss and probably great ultimate convenience would be found in carrying the flues in every point where space will permit. If needed they could be pierced and used as induction or discharge-flues; if not called for, they would constitute a modification of the ordinary *vaulting* or air-space left in many first class constructions.

2. *Want of directness of ascent.* When a motive power is intended, this objection is of diminished importance, but reference is now rather had to the

spontaneous movement induced by mere diminished gravitation. So in passages where very highly-heated air is admitted or discharged, the great rarefaction may overcome this obstacle to a greater or less degree. In the mere power derived from the animal heat or common warming of apartments, a change of direction only a few degrees from the perpendicular seems to produce a series of eddies against the upper side of the pipe, which impedes the ascent.

If a flue has more or less oblique angles, as occasionally is necessary to clear doors or other openings in the wall, the same eddy acting like a positive impediment occurs. The higher up and less frequently repeated, the less will be its injury.

If the flue turn at right angles or pass horizontally, or with a second upward run, the draught will be proportionally impeded as the angles are more frequent and the horizontal portions longer. In most cases a bend twice at right angles, at ordinary temperatures, without enlargement of the horizontal section, and without exhaustive power, is nearly as fatal to the discharge as an actual closing of the flue.

3. *The flues are not of a figure and finish calculated to favor the upward ascent of a fluid like air.* A tube with oblong area, or even a square made with rough bricks, and without *pargeting* or interior plastering, gives rise to so much friction, that its actual performance falls far short of its theoretical power.

The most effective shape is the circular cylinder, next the ellipitical, then the square with bevelled corners, and so on, down to the narrow parallelogram. Air in its ascent is disposed in obedience to obstacles which affect it, to take a spiral motion. The more regular and smooth its tube the less broken will be the spiral motion; the friction will be less, and of course the discharge the more increased. The effect of rough surfaces or of air compressed into the angles of the flue, is not only to retard its speed and quantity directly, but, what is an important loss when feeble ascensive power exists, by this delay to give time for the current to cool, which also acts still more disadvantageously by increasing the gravity.

In forming air-flues of metal, they are naturally made round. A little increased pains and cost more than repaid in augmented efficiency, would also furnish them in wood or brick-work of the best form and surface.

4. *Flues are made in exterior walls*, and the air which is intended to be discharged in consequence of its elevated temperature and diminished gravity is so cooled down by exposure to the exterior cold, as to cease to ascend; or even a reversed action may occur in certain conditions of the weather. The absurdity of this arrangement of small square flues in outer walls, was strikingly exemplified in the ventilation of the sleeping rooms of the South Boston Lunatic Hospital. As has been before observed, if an active motive power is employed, the objection to foul-air flues in outer walls becomes of little or no consequence.

5. *Foul-air flues, in the spontaneous mode (i. e. with no power to produce motion), opening directly into the open air*, are not to be depended upon for an upward action. The usual custom resulting from this difficulty, is to have them terminate in the attic or garret, from which the communication to the open air is made through some form of cowl, Chinese cap, or louvre.

A simple valvular arrangement to prevent regurgitations in sudden shifts of the wind, or when if turncaps are used they are caught "on the centre" so as to face windward, is often introduced with great advantage. A mode long used in the McLean Asylum is found free from objection. Just below the escape opening in the ridge of the roof, a broad platform a few feet long is laid so as to cut off four or five feet of the apex. At each end this is boarded up, leaving an oblong space about four feet by two. Wires are placed horizontally and vertically across this space, making squares of eight or ten inches, to sustain the valve. The valve consists of common cotton cloth, suspended by tacks from its upper edge, while the lower or free edge is stiffened by a thin strip of wood. It is placed within the wires. The ordinary upward movement keeps this thin curtain raised before it, scarcely impeding the current. Any retrograde action at once closes the flap against the wire, and prevents any backward flow.

When the roof is slated, and indeed, though less urgently, in other cases, the attic should be plastered to prevent the sudden cooling down of its air to a point below that in the house, when, of course, the air descends.

6. *Any flues depending wholly upon the action of cowls or turn-caps* in any of their numerous forms, are totally unequal to the demands of a constant, reliable ventilation. Many of these are re-invented every few years, and there is not perhaps a single form of them which may not find its prototype, or exact example, in the patent repertories and philosophical transactions. The reader who has the slightest faith in these machines will find a great number of sketches of them in Péclet's complete treatise, in Dr. Wyman's work, and his Report to the American Academy of Arts, &c., or in the curious researches of Ewbank. This latter practical mechanic demonstrated by actual experiment, as respects the revolving varieties, so far as trials by models are demonstration, that of all the known forms, the most effective was the simple bent funnel a little swelled at its mouth with a vane. If it has a curved line at the back, it must also least impede the natural ascent of air, when no current exists, — a serious objection to all the others, that of diminishing the upward movement in calms by at least one right angle, and usually by the friction of the interior.

The simple fact in regard to those auxiliaries is, that during certain constantly recurring and occasionally lengthened periods of entire stillness, when ventilation is most imperious, they are wholly useless. Employed with some other reliable motive power, the *plenum* and *vacuum* cowls, that is, one facing to the current and throwing the air into the underground flue or other supply channel — the other drawing off the air from the ceiling, are aids which may be collaterally employed at times quite economically, but are never to be trusted to alone.

Mr. Sylvester the ablest and most practised ventilating engineer of England, generally adds a simple form of these at each end of his ventilating current. The New York Public schools have one of each kind; pure air being admitted diffusedly as it enters.

7. *Flues opening for the egress of vitiated air at any point near the floor.* This method of constructing escape-flues, in the expectation that when the apartment is crowded full of warm air the lower stratum will be forced

outward and into them, has often been tried and always results in failure. In the earlier attempts at ventilating the McLean Asylum, this arrangement was well tested. The hot air was admitted near the ceiling, but no intensity of heat would drive it into the rooms to the extent of forcing out the lower, and of course if this action were maintained, vitiated stratum. Our text exhibits the occasional expediency and practicability, especially for the lower classes of insane patients, of opening exit flues at the floor, thence carrying them upwards to the main flue connected with the motive power, or directly down into a common flue passing into the shaft in the cellar.

7. *Discharge flues fail from the absence or insufficiency of the means of supply of fresh air below.* For example, the lately built hospitals for the insane usually have no other means of ventilation, than upward flues in the wall. All the air admitted into the halls and rooms in the season when fires are used, is that from the registers of one or two furnaces to supply twenty to forty rooms. In that period often of considerable duration of too high external heat for artificial warming, while it is yet too low and damp for open windows, the same channel and the cracks and openings of doors, constitute all the places of admission of fresh air! It is singular that the first principle of pneumatics should have been thus often violated. To expect vitiated air to depart when no fresh air can take its place, or, on the contrary, that pure air should enter when the escape is not free and of adequate dimensions, is alike absurd.

When a high chimney or lengthened flue in a lofty building may be relied upon, the constant current may often be produced spontaneously through a small room, by opening a channel from its floor to the cellar. A series of very offensive water closets were rendered quite tolerable by this arrangement. A separate flue to each passed from the floor to the cellar, and another from the ceiling to the attic. The walls having originally been filled with flues, as recommended above, this arrangement was made many years after the erection of the buildings, by piercing and stopping them, as the case required.

B.

The extent of apparatus required in warming by steam and hot water, has been the subject of experiment, and experience of many years in practice, in fact since 1745; the results of which are given by various scientific writers, — Buchanan, Tredgold, Scott Russell, Arnott, Hood, Bernan, &c. Their experience is confined to the climate of Great Britain, and they differ considerably from each other. Yet keeping an eye to the occasional extremely intense cold of New England winters, the approximation may have some value as a basis for any practical undertakings here.

I. *Of Steam Heating.*

The following items of the more useful kind, taken from the table of Mr. Bernan, deduced by him from Buchanan and others, exhibit the practical effect of a given surface of steam pipe or other form of enclosing surface, in

maintaining certain areas of interior at a raised temperature, when the external air was below the freezing point of water.

A square foot of steam-warmed surface kept —

400	cubic feet	of space of a chapel,	(cast iron pipes,) at	60°.
370	"	" meeting house,	"	"
180	"	" dining room,	"	" 64°.
209	"	" dining room, containing 8,400 cubic ft. 15 feet high,		" 62°.
306	"	" public room, (cast iron pipe,)		" 54°.
175	"	" 6 cotton mills each containing on an average 205,006 cub. ft. of space (c. i. pipe)		" 80°.
256	"	" counting house, lighted from ceiling,		" 61°.
243	"	" average of three do. lighted from side,		" 64°.
140	"	" average of seven rooms in a public building heated by an ornamental cast iron vase in ea. ¾ in. thick; greatest effect,		" 50°.
		one of the rooms fitted with double windows could be kept at		" 64°.
266½	"	" printing office; 4 floors, average,		" 68°.

For uses requiring a much higher temperature, as for forcing in greenhouses, drying rooms, the quantity of surface is, of course, much augmented; for example, in a forcing house, 30 cubic feet of space were kept at 80°, by each foot of steam surface; in drying houses requiring from 90° to 100°, that amount of radiating surface supplied from 40 to 80 cubic feet. As these purposes are not within the scope of the present inquiry, it is not necessary to pursue them.

The application of these elements is obvious. For example, if it be required to ascertain the amount of iron surface for a factory containing 100,000 feet of space, divide this quantity by 175: the quotient 574.2 will be the number of feet of steam surface which will secure a temperature of 80°, while the external air is below 32°. Or if of a dining room of 5,000 feet space, this divided by 140 will give 35.7 square feet of steam surface to maintain a summer heat. Mr. Bernan remarks that these though rough, are safe practical estimates, which may be applied and depended upon in numerous analogous cases.

Mr. Tredgold's formula for determining the extent of steam pipe, is this: If, for example, 200 cubic feet of air is to be supplied per minute, to a room to be kept at 60°, (external air at 32°,) he considers the average surface heat of the steam pipe as 200° — not 212°, the steam point. Then, if the difference between the required temperature and the external air be multiplied by the number of cubic feet of air required per minute, and the product be divided by 2.1 times the difference between 200 and the temperature of the room, the quotient will be the number of square feet of surface required. Thus $(60 - 32) \times 200 = 5600 \div 2.1\ (200 - 60°) = 19$ square feet of iron pipe or other surface of metal.

The first of these methods omits any consideration of the heat removed by ventilating processes. Mr. Tredgold's omits any reference to the space to be heated. Dr. Arnott takes into view the heat lost by glass windows, by crevices,

and by openings for change of air. He estimates that in the winter day, the thermometer at 10° below 32°, to maintain a temperature of 60°, there must be of surface in contact with steam, (which surface in actual average practice he also considers as at 200°), one foot square for every 6 feet of common window glass ; as much more for every 120 feet of wall and ceiling of ordinary materials, and the same for every 6 cubic feet of hot air escaping per minute as ventilation, and replaced by fresh air. A window of usual tightness allows 8 feet of air to pass per minute, and there should be allowed at least 3 feet of air a minute, for each person in the room. Thus, suppose a room 16 feet square by 12 feet high with two windows, each 7 feet by 3, and with ventilation by them or otherwise, at the rate of 16 cubic feet per minute.

42 sq. feet of glass requires	1	foot of	steam	surface	for every 6 ft.	=7 feet,
1238 feet wall, ceiling, &c.	"	"	"	"	120 ft.	=10¼ feet,
16 feet per minute,	"	"	"	"	6 ft.	=2⅔ feet,
						20 feet,

that is, 20 feet of pipe 4 inches in diameter, or other equivalent of metallic vessel.

Let us apply the elements of Dr. Arnott to a common Massachusetts school-house for 100 pupils. The common dimensions of such a school-room would be, say 40 feet long, 22 feet wide, and 12 feet high, containing of superficial square feet of surface, $40 \times 22 \times 12 =$

3248 f.	at 120 ft.	for 1 ft.	of	steam surface,	is 27 ft.
Windows, $7 \times 3 \times 6 = 84$ f.	at 6 ft.	"	"	"	14 "
Ventilation 100 persons $\times$ 3 f. $= 300$ f.	at 6 ft.	"	"	"	50 "
					91 ft.

Or ninety-one feet running of 4 inch pipe, a length which would be a little short of passing around at the angle of the floor on three sides of the room. If larger or smaller pipe or if enclosing vessels of other shapes be used, the running length or area will be readily calculated.

The size of the boilers will be fixed by the capacity of the pipes. As much space for steam should be left in the boiler, as is equal to all the steam in the pipes. The space for the water should be somewhat, say one eighth less. In the illustration just cited, to find the size of boilers :

	Circum. of pipe.			in a gallon.	
$12 \times 2 \div 2 = 12 \times 12 = 144 \times 91 = 13{,}104 \div 231 =$					56 gallons for steam,
Less one-eighth, for water,	.	.	.		44
Size of boiler,	.	.	.	.	100 gallons.

II. *Of Heating by Hot Water.*

The cause of the circulation of hot water in tubes leaving and returning to a boiler is undoubtedly owing to the diminished gravity of the fluid when rarefied by heat. The moving power will depend, therefore, on the difference of distance at which the upper or warm, and lower or cooler pipes are placed from each other, the directness of the current and the heat withdrawn. Mr. Hood says he has known as small a difference as three inches where the pipe was very small, (two inches in diameter,) and free from turns and angles. He however regards a foot as the minimum height which will

obtain a good circulation, where the pipes do not dip below the horizontal level, as in passing doors.

The pipes may be carried over every story of a house. In this case, the boiler must be closed, and made capable of standing the great pressure represented by the widest base at the boiler, and the highest line of the column — a pressure apt to occasion leakage, unless the mechanism of the joints is extremely perfect.

In case the pipes are carried horizontally in flues, or convoluted in air chambers, where no point of the circulation is higher than the level of the boiler, no considerable strength of boiler or of joinings is required. It is not unusual, under these circumstances, to allow the boiler to be covered only with a loose cover, the evaporation from it passing directly into the air flues.

It is by no means necessary that the pipe connecting the radiating tubes with the boiler, should be of full size. Mr. Hood prefers in using four-inch pipes of cast iron (which is his favorite size), that the connections should be only two inches in diameter.

Masses of pipes may be thrown into air-chambers, located at points in the cellar determined by the position of the apartments above to be warmed. In such cases, the difficulty of distributing hot air horizontally in channels, is provided for, and the great advantage of a direct perpendicular supply-flue is secured. The connections between these receptacles of pipes, each of which has its fresh-air channel, may be kept up with the boiler and with each other by much smaller pipes, wound with cloth, or other non-conducting material.

It is common to make the difference of level of the pipes several feet. The height of the basement or cellar, and the form of vertical boilers, with tubular flues, much used of late for this purpose, allow as much variation as the case requires, where no attempt is made to send pipes above.

The quantity of heat removed in the air-chambers or channels containing the pipes, by conduction, is four-fifths of the whole. The remaining one-fifth, distributed to the walls of the containing cavity by radiation, is not wholly lost, since it is again given out to the air when the temperature is lowered.

Where there are various series of pipes leaving the boiler, a regulating cock, or the simple and much superior valve used for such purposes of late, should be added, to regulate the flow as circumstances may require. As the current depends not only on the difference of level, freedom from turns and angles, horizontal or vertical, but also on the rapidity of reduction of temperature, some care is required to regulate the various distributing coils or aggregations, by shutting off a portion of the flow to those where an undue proportion of heat is received.

It is obvious, that the impinging of a full current of extremely cold air upon one series, would reduce the temperature, and consequently the gravity and the activity of motion, much beyond the rate common under other circumstances.

In using the mild hot water apparatus, or that in which the circulating fluid does not rise above 212°, so termed in contradistinction to the method invented by Mr. Perkins in which water may even be heated to a degree sufficient to inflame wood in small strong pipes, the quantity of pipe used is about the same as that employed with steam, and of course the methods of calculation just given may be applied. Mr. Hood, the latest and best writer

on this subject, gives the following rule as more accurate than any means hitherto found for calculating the radiating surface of simple hot water tubes. "Multiply 125 by the difference between the temperature to be produced in the room and that of the external air; divide this product by the difference between the temperature of the pipes and that of the room; then multiply the quotient by the number of cubic feet of air to be warmed per minute; this product divided by 222, will give the number of feet in length of pipe 4 inches in diameter. If 200 cubic feet of air is to be warmed in a minute, and the external air is at 32°, the room at 60°, and pipe at 200°, then $125 \times 28 \div 140 \times 200 \div 222 = 225$ feet of 4 inch pipe required. This multiplied by 1.38 will give the length of 3 inch pipe; by 2 of 2 inch pipe, or four times the length of one inch pipe."

The table following gives by inspection, the amount of radiating surface to produce a given result.

Table showing the quantity of pipe, four inches in diameter, which will heat 1,000 *cubic feet of air per minute, any required number of degrees; the temperature of the pipe being* 200° *Fahrenheit.**

Temp. of ext. air.	Temperature required for the Room.									
	45°	50°	55°	60°	65°	70°	75°	80°	85°	90°
10°	126	150	174	200	229	259	292	328	367	409
12°	119	142	166	192	220	251	283	318	357	399
14°	112	135	159	184	212	242	274	309	347	388
16°	105	127	151	176	204	233	265	300	337	378
18°	98	120	143	168	195	225	256	290	328	368
20°	91	112	135	160	187	216	247	281	318	358
22°	83	105	128	152	179	207	238	271	308	347
24°	76	97	120	144	170	199	229	262	298	337
26°	69	90	112	136	162	190	220	253	288	327
28°	61	82	104	128	154	181	211	243	279	317
30°	54	75	97	120	145	173	202	234	269	307
Freezing 32°	47	67	89	112	137	164	193	225	259	296
34°	40	60	81	104	129	155	184	215	249	286
36°	32	52	73	96	120	147	175	206	239	276
38°	25	45	66	88	112	138	166	196	230	266
40°	18	37	58	80	104	129	157	187	220	255
42°	10	30	50	72	95	121	148	178	210	245
44°	3	22	42	64	87	112	139	168	200	235
46°		15	34	56	79	103	130	159	190	225
48°		7	27	48	70	95	121	150	181	214
50°			19	40	62	86	112	140	171	204
52°			11	32	54	77	103	131	161	194

Find the external temperature in the first column, and the required temperature of the room at top; the number at the intersection of these columns will represent *the number of feet* of four inch pipe.

The principle which fixes the size of boilers in the hot water apparatus has no analogy to that in steam boilers. The size of boilers is based upon the quantity of fire surface which may be thought necessary to keep the water heated; — the greater this surface in reference to the capacity of the pipes and the less the quantity of water, the sooner it is heated. Of course the

* Hood on Warming Buildings, page 97.

boilers are best, made of a shape in which the under side is concave or reverberatory, and the top and bottom distant only a few inches from each other. The nature of the fuel will influence the extent of boilers. Mr. Hood says, that one square foot of boiler surface exposed to the direct action of the fire, will be sufficient to supply the necessary heat to forty superficial feet of pipe, or other radiating surface. This, he observes, is a very good proportion, suitable for nearly every purpose. This is a considerable reduction from the maximum, which is about 50 feet of pipe to the foot. This however makes an apparatus much easier managed, and more effective and certain than where only the extreme is calculated upon. He gives the following table as deduced from the allowance of one foot of direct boiler surface to 50 feet of radiating surface.

	Feet 4 in. pipe.	Feet 3 in. pipe.	Feet 2 in. pipe.
4 square feet,	200	266	400
6 " "	300	400	600
8 " "	400	533	800
10 " "	500	666	1,000
14 " "	700	933	1,400
20 " "	1,000	1,333	2,000

In modern practice, the forms of boilers filled with small tubular flues, like those of the locomotive engines, are much employed for steam and hot water warming.

While I have thus adduced the latest and most practical foreign authorities as to the quantity of steam-warmed, or hot-water-warmed metallic surface adequate to produce a satisfactory temperature, under different circumstances, I cannot conceal my conviction that the great element of calculation is so essentially changed in the climate of New England, that our knowledge of the extent of apparatus to heat adequately private or public houses must be reached in an entirely different method. This element is the prodigious reduction of temperature during our winters, not infrequently reaching an extreme, for days, so much below the experience of Great Britain, as certainly to render nugatory any calculations based on the results of experience in that country. It must not be forgotten, that any provision for heating must be capable of meeting these extraordinary cold seasons. However well all average conditions might be fulfilled, no apparatus not fitted for the ultimatum of New England winter cold could be tolerated, except provision were made in other forms of heating, to aid in the extreme emergencies.

In advising the extent of apparatus of these kinds, I have been disposed to throw aside the experience of other climates, and proceed tentatively until an experience, precise and definite, of our own shall be attained. It is easy to contrive arrangements by which pipe, whether for steam or hot water, shall be added successively in the air-chambers, until the exact point is reached. The furnaces for anthracite, especially, and for any fuel, can be made so as to admit of a very considerable increase of the usual amount of consumption, both by increasing the draught and by enlarging the grate.

If the heating is by steam, a second boiler can be added, if the additional quantity of pipe required in the air chambers cannot be supplied by the first.

The only objection to these successive additions is, provided the probability or possibility of future additions is kept in view from the first, the difficulty of

making estimates or contracts for the proposed heating. As, however, the most common uses on a large scale will for some time, at least in this country, be for hospitals and institutions, where, if well done, the question of cost is quite secondary to that of hygienic perfection, the method of providing by contract will not be likely to be selected, until a greater amount of experience is aggregated, it is not much to be regretted that we must reach our end in this way, by trials.

In our climate, I should prefer to form a judgment of the quantity of apparatus, by a comparison drawn from the amount of fuel used in the common way, rather than from the best data now accessible. The same quantity of fuel containing (if its combustion is equally perfect), as much caloric when used through one medium as in another, it would not be difficult to adapt the fire surface to meet the estimated quantity of fuel to produce a certain result, if consumed directly.

For example, if a hospital was known to use a given quantity of anthracite or bituminous coal or wood per annum in hot air furnaces, it would be safe to have the boiler or heater grates made on a scale to consume the like quantity. This estimate would be controlled by any influencing circumstances, such as a more extensive waste in ventilation, a less escape at the point of combustion, &c., which might seem to demand a greater or less quantity of warming material. It is of course not pretended that the methods recommended of steam or hot water warming, are the most economical. It is the quality, rather than the quantity of the heat which constitutes their superiority. Still, however, there can be, from the nature of things, no waste in fuel, circumstances of waste being the same.

It fortunately is true in practice, that the size of the hot air chambers in which the radiating surfaces are enclosed, is quite an immaterial consideration. It may be made sufficiently large to admit twice or three times as much tube as may at first be thought adequate, without any loss of advantage, in case increased quantities are added.

In practice, the shape in which the radiating surface is arranged is a matter of considerable moment. Pipes are much more conveniently connected than plates or more solid forms, and those of 3 and 4 inches are more convenient than larger sizes, so that it is preferred to use a double small pipe, (which also allows one set to be disconnected by cocks), rather than a larger single one.

Of late years, welded iron tube of ¾ to 2 inches is much used for steam and hot-water warming, as well as for many purposes for which lead pipe was formerly used. It is much cheaper than lead, for pumps, aqueducts, &c., where any considerable amount of pressure is to be provided for, and has as regards the conveyance of water for household uses the decisive advantage of involving no unpleasant or injurious consequences to those using it. The frequent poisonings from water conveyed in lead pipes, although doubtless to be explained chemically as ascribable to peculiar circumstances not touching all waters, cast a distrust and a sickening suspicion over its employment, entirely forbidding its adoption while this better method is at hand. The joinings are by screws, a *jacket* with a female screw uniting two lengths, a little white and red lead in oil being used. These pipes cost from 12 to 15 cents per foot for inch diameter. The cost of large cast iron pipes of 3, 4, or 6 inches diameter, will be found per foot of outside or radiating surface, to be considera-

bly less. The pipes cast for heavy heads of water can often be obtained, in consequence of their thinness, for their value as raw material. As the pressure of steam or hot-water heating is never more than one or two atmospheres, these fully meet every requisite.

Steam and hot-water pipes are connected in the same way. This is done by flanges brought together by screws, with some suitable substance, as pasteboard, rope-yarn, or felt, covered with white or red lead in oil. This is a usual joint for steam under great pressure. The socket joint in which the end of one tube is enlarged for a length about equal to its diameter, and the next one inserted therein and the intervening space filled up with iron-cement is a much neater and equally strong process. After the iron cement is thoroughly dried, it becomes as strong as the iron itself.

The iron-cement for these junctions, as well as other purposes in steam and hot-water apparatus, is compounded in various ways — the main ingredients being sal ammoniac, iron filings or turnings, and sulphur.

Mr. Buchanan's recipe consists of 40 parts by weight of iron borings, to 1 part of sal ammoniac, and half a part of sulphur, well beaten together. As much sulphur renders the composition brittle, a smaller proportion is advisable, when no haste is required to admit the steam.

Mr. Peckstone gives the following directions. Take 1 lb. of iron borings, pound in an iron mortar until they will pass through a fine sieve; mix two ounces of powdered sal ammoniac, and one ounce of flowers of sulphur. Mix by rubbing in a mortar, and add water to a proper consistency, to be set up with a blunt caulking iron into the space between the pieces.

The French prescription for this important material, as given by Péclet, is one hundred parts iron turnings, two of sal ammoniac, one of flowers of sulphur, and half a part of sulphuret of antimony, to be mixed with urine enough to cover it. It will not attain its hardness for some days.

A packing of hempen rope smeared with a mixture of red and white lead in oil, and driven in with a caulking iron, also makes a secure and permanent joining for steam and hot water tubes.

In arranging pipes for heating by steam or hot water, it must not be overlooked to make an allowance for expansion of $\frac{1}{8}$ of an inch for every ten feet of pipe. A *drip* pipe to carry off the condensed steam is also necessary, unless the tubes are so raised at their farther extremity as to allow this to run back to the boiler.

Nor in hot-water pipes must be overlooked the tendency which air has to become impacted at some point of the circulation and thus prevent the whole current. It is safe on this account to have every elevated point, and every alteration of level of the pipe fitted with an air pipe rising as high as the level in the boiler, and provided with valves or cocks to permit the tubes to be freed from this embarrassing obstruction.

There are practical difficulties in carrying hot-water pipes to several stories in height, arising from the pressure of long columns of water straining the joinings and endangering leakage, which, in most cases, renders it usually more advisable to place the pipes in ranges in an air chamber in the cellar below to which the air is admitted by a flue from without, and drawn out in upright flues. The air chambers may be elongated in order to carry the air horizontally to any distance, or made at convenient points as respects delivery above, and the connection with the boiler kept up by simple

smaller pipes, protected from waste of heat by non-conducting coverings. In the new Penitentiaries at Wakefield, the upright flues withdraw hot air successively for some hundreds of feet. The only loss is from the conduction of the sides of the air flue, in which the hot-water pipes are suspended.

In the warming of the Massachusetts General Hospital, the water pipes are made of thin copper tube, about one thousand feet in length for each wing, and four inches in diameter, placed in air chambers.

I have been induced to go somewhat minutely into the detail of the methods of heating by steam and hot water, from several considerations. I know of no American work or reprint which contains any information on the subject. This mode of heating for health and luxury is vastly superior to any other, whether in public or private buildings, occupied by persons for any length of time. The fire-proof character it gives to buildings is important, and in public buildings for libraries, the fine arts, and the like, can scarcely be overestimated. The methods are simple, and were the mechanical fittings as well understood with us as they are in Europe and ere long will be here, a true economy would permit a very wide use of this elegant, convenient, and healthful addition to the comforts of civilized and refined life. So far as consumption of fuel is concerned, it is obvious that there can be no loss as compared with other modes, beyond the trifling expenditure of radiated heat at points, as the cellar, where it is not available. By the use of non-conductors around the steam and water boilers and pipes, this is reduced to a trifle. The waste of fuel by the chimney is better prevented than in most furnaces; and that serious drawback upon all modifications of hot-air furnaces, calorifers, or stoves furnished with fresh air from the outside, or even open grates and fire places — the escape of occasional or constant quantities of smoke, gases, and impalpable powders — is unknown.

The mechanical knowledge of steam power, of cast iron and other branches of metals, has become so general in this Commonwealth, that but little difficulty can be experienced in appropriating the delightful and hygienic advantages of the unequalled atmosphere thus produced, if a directing mind can be found to assume the responsibility and oversight of the needful fittings. Feeling much hope that this healthful mode of warming school-houses and other inhabited buildings by pure air warmed by contact with hot-water and steam tubes, may become general, as the facility and cheapness of providing the necessary apparatus are augmented — as they cannot but be with the advance of the community in the mechanical arts — another circumstance of detail may be of importance, especially to those who may have apprehensions of the safety of such measures under all circumstances, which persons of no practical acquaintance with the management of steam and heated water may naturally enough be presumed to feel. A closed boiler, although intended to be subjected to no strain or to the most moderate pressure only, may by carelessness or accident be subjected to a much greater or a dangerous force. The safety-valve, that simple and efficacious protection, may from neglect cease to act, or it may be secured by ignorance or mischief, so as to be a protection no longer. Again, the supply of water, so essential to safety, may be omitted.

With the possibility of a contingency like this occurring, few persons would feel safe in trusting a boiler large enough to warm a common school-house,

for instance, in the inexperienced hands which alone can be expected to manage such an apparatus in such a position.

It may be satisfactory to any who might, with this source of anxiety removed, be willing to introduce this beautiful method, to be assured that there is an additional mode of guarantying the safety of boilers from explosion, exceedingly cheap and simple; which we have the high authority of the most eminent writer on this class of subjects, Mr. Péclet, for saying, offers a complete efficacy against dangerous pressure.

This consists in the application of a plate of fusible metal to a hole in the upper part of the boiler, to which the steam has direct access. As the pressure of the steam increases, its heat augments in a certain well known proportion. The readiness with which the metal melts depends on the proportion of the ingredients, lead, tin, and bismuth, of which the plate is composed. A plate prepared so as to fuse at a point considerably below the proved strength of the boiler, would promptly become melted, giving free escape to the steam and preventing all hazard.

A royal ordinance in France prescribes the various points to be regarded in these safety plates, two of which must be placed to fuse at different temperatures on every steam boiler.

The plates should be of the same size as the area of the safety valve, and as they are liable to be swelled out at a lower point than that of fusion, and might be ruptured, they are covered on the outside by a perforated plate of iron, which of course gives no obstruction to the issue of steam, when the fusible metal has yielded to its expected heat. The arrangement is this:— A hole as large as the area covered by the safety valve, is bored into the top of the boiler; the fusible plate, one half to one inch thick, is placed over it with the usual cement to make a tight joint; the perforated iron plate or grating, is placed above and screwed at its outer edge to the boiler, thus confining the plate.

The following table gives the proportion of the metals to be alloyed together to resist the heat produced by steam at various pressures, of from one to eight atmospheres, or from fifteen to one hundred and twenty pounds to the inch. The last pressure is of course as much as will ordinarily be employed as a maximum in steam boilers.

Number of Atmospheres, each 15 lbs. to sq. inch.	Corresponding temperature of the Steam.	Actual temperature at which the alloy melts.	Proportions of the fusible alloy in parts.		
			Bismuth	Lead.	Tin.
1	100.	100.	8	5	3
1½	112.2	113.3	8	8	4
2	121.4	123.3	8	8	8
2½	128.8	130.	8	10	8
3	135.1	132.4	8	12	8
3½	140.6	143.3	8	16	14
4	145.4	145.4	8	16	12
5	153.8	153.8	8	22	24
6	160.2	160.2	8	32	36
7	166.5	160.5	8	32	28
8	172.	172.	8	30	24

The temperatures are here given by the Centigrade standard, the proportions of which to Fahrenheit's, are as one hundred to one hundred and eighty, or as five to nine.

As a means of saving calculation, the following table of the contents of tubes of various diameters is given.

Diameter of pipe. Inches.	*Contents of* 100 *running feet.* Gallons.
½	.84
1	3.39
1½	7.64
2	13.58
2½	21.22
3	30.56
4	54.33
5	84.90
6	122.26

The question whether large cast iron or small welded tubes should be used for steam or hot-water circulation, is readily determined by the relative economy of providing a given amount of radiating surface in each.

Where a steam pipe over four inches in diameter is used, it is said, that the difference of temperature in the upper and under portions, and, the consequent irregularity in expansion, gradually produces an upward curvature endangering the soundness of the joints.

In all steam or hot-water pipes, provision for the expansion and contraction is readily made. If the pipe is of large diameter it is suspended by chains or on rollers. If small, slipping joints with a screw collar, like the ordinary stuffing joints, are used. Or a bend in the pipe at one or more places, like the letter U, enables the two upper portions to be closed together or drawn asunder without disturbing the connections of the tubes.

C'.

The plan recently proposed, and now in process of completion, for the heating and ventilation of the male side of the McLean Asylum for the insane at Somerville, Mass., is predicated on the experience of the English examples, and is arranged on Dr. Reid's general principles. It is considered as worth description, from its having some distinguishing peculiarities in its arrangements.

The building is in the form of a T, with the perpendicular line at an oblique angle (see Fig. 18, Pl. IV.) The two portions having been built at different periods, were unfortunately connected by the end of the earliest being inserted into the new portion, making a dark and unventilated interior, which it has been the object of recent designs to remove. The horizontal part is 90 f. × 40, and the diverging or old portion 80 f. × 40, each of three stories, and consisting of a gallery running the whole length with the day rooms.

dormitories, water-closets, &c. opening upon this central corridor. About ninety patients and twelve or fifteen assistants are accommodated in it, with the aid of some attic rooms and a separate lodge building.

The heating in former years has been accomplished with various forms of hot-air furnace, and the ventilation in the spontaneous method of late years, that is, by flues opening from the rooms and running up to the garret, whence the foul air escaped by chimney cowls turning to leeward. The earlier attempts referred to in a different part of this Appendix proving wholly nugatory, without a motive force which could not be readily devised, had been converted as far as possible into the simple escape flue from the ceiling; in more pressing cases, as in water-closets and lodge-rooms, these were aided by induction flues, running from the floor directly down into the cellar. It is hardly necessary to say, that under all the unfavorable circumstances of construction, size of flues, use of hot-air furnaces and absence of moving power to exhaust the foul air, the condition of the building as respects an abundant supply of pure, gently warmed air, was like that of all the other insane hospitals of New England, which are all furnished in the same manner, exceedingly imperfect and behind the age.

Years of consideration have elapsed without there appearing to be any way of overcoming the difficulties presented by the original omissions in the construction. The lighting was imperfect, and the heavy brick walls forming the partitions and resting in part on heavy groined arches below, could not be perforated with new flues of proper number and size. The interior walls supporting the attic story of the center and the dome, forbad the idea of any upward ventilation with motive power, as it would require the power to be in four distinct sections under the roofs, which could not be connected without sacrificing a considerable number of rooms and passages necessary for the accommodation of the patients and their due classification.

Under these complicated and embarrassing difficulties, the following arrangement was suggested, as that which would best meet the necessities of the case; — that about fifty feet of the centre of the front building should be eviscerated, and gallery walls be built up continuously so as to extend the corridor at a uniform width from end to end, and in these by a proper thickness of walls to furnish as many hot-air and foul-air flues as were required.

A large space, which in consequence of the peculiar twist and insertion of the wing, could not be lighted or otherwise made of value, and which was at the most central point of the two sections, was devoted to the use of a ventilating shaft. The ventilating shaft commences with a circular interior of about six feet diameter, and gradually tapers to about one half the bottom area. The entire height of the shaft is over seventy-five feet. The boiler for the hot water for heating was placed near this, and the smoke chimney of cast iron pipe, runs up until within about ten or a dozen feet of the top, when the foul-air shaft begins to be contracted to give impetus to the current at its exit. Here the smoke and gases of the chimney are to be delivered into the shaft.

The pure air is admitted through a long under-ground flue of about twenty feet area, terminating in a short tower, which was originally used to supply the hot-air furnaces. From the cellar, openings are made every few feet to permit the air (the current of which, often troublesome when the winds

are strong, is checked by being admitted into the open space or reservoir, as it were) to enter the long horizontal box or air channel divided into three divisions, each of which supplies a story of the house, and each has a couple of hot-water pipes, of large size, connected with the perpendicular boiler by small tubes. These circulate the water the whole length of the cellar, under the central corridor on the one side, and bring it back to a lower point in the boiler on the other, a distance of about one hundred and twenty feet. The partition into three channels was considered indispensable to make an independent heating and ventilation for each story, as it ever has been found impossible so to regulate air flues leaving the same chamber and opening at different heights, that there shall be a reliable uniformity in different stories.

The pure air enters all these channels in the cellar at orifices commanded by lids or registers, and each one of them delivers its heated air through the flues opening from its superior surface into the story for which it is designed, uninfluenced by its neighbor.

The warmed air is delivered *near the ceiling*, at quite a number of orifices in each corridor, and in those rooms where it was thought it would be required, and in as free openings as the space would allow. The foul-air flues commence near the floor of each room or gallery, and descend to the cellar floor in the wall. At a point opposite the ventilating shaft, the joint flues are turned by the shortest course so as to open beneath the foot of the shaft.

One of these foul-air flues is to be turned beneath the heating boiler so as to supply its air of combustion.

A little reflection will show that the objects of this apparently complex, but really perfectly simple arrangement are,

1. To destroy the effects of currents connected with the direction and force of the wind, by receiving the air into a reservoir.

2. To admit it in various places to the hot-water tube, and discharge it in each story at openings a few feet distant from each other, so as to produce a general diffusion.

3. To make the heating and ventilation of each story entirely independent of each other from the point where the air enters to its discharge.

4. To admit the heated air at the ceiling, and draw it off at the floor, to obviate the peculiar difficulties in insane hospitals from a reverse of this movement.

Precisely the same arrangement connected with the same ventilating shaft and the same boiler, will be necessary for the projecting wing.

Fig. 18 represents a plan of the male side, but the heating and escape flues are necessarily to avoid confusion, represented rather as a diagram, than as an actual plan. Fig. 19 is a cross section at the point noted in the ground plan by the dotted line. The warmed air is here figured by the solid lines and arrows entering the tri-partite wooden channels, *a a;* after impinging on the hot-water tubes running within, it passes in the corridor wall, and is delivered at the ceiling ; — the foul air, represented by the dotted line, descends at the floor, passes down in the wall, crosses into the drain at the bottom of the cellar, passes along that until near the shaft into which it ascends. The ground plan represents the course of the foul air from the rooms to the shaft.

The great number of warm and foul air flues, on each side of the corridor,

and each pair fulfilling the purpose just described, could not be represented on so small a scale.

Dampers are inserted at such places as are convenient to control the ingress and egress of the air. It has been within the purview of this adaptation, to carry an additional hot-water circulation into such portions of the wing, as from their occupation by cleanly and convalescent patients, do not require to have all the heated air used, and which is wasted, if not so required by passing off in unneeded ventilation.

The escape steam from the steam pump used to elevate the water used, will be turned into the centre of the shaft, to add to the motive power.

Fig. 19, Pl. iv. represents a section of the male wing at the point denoted by the dotted line *b*, of fig. 18; *a a*, are the longitudinal hot-air chambers in the basement, divided into three sections, one for each story, and enclosing the four inch cast iron water tubes; *b*, is the upright tubular boiler in which the extremities of the tubes enter at top and bottom, a difference of level of five or six feet; *c* is the exhausting shaft represented in plan at *a*, in Fig. 18; *d* is the foul-air drain, opening beneath the shaft, represented in plan by *c*, of fig. 18. *d* and *e*, of fig. 18, indicate the position of the hot-air chambers and water pipes, at the foot of the partition containing the ascending and descending air flues. For perspicuity, only a single pair of induction and eduction flues to each room are figured. It is obvious that in view of the several stories, a horizontal section would show a great number of flues. The dotted lines show the course of the foul air, the solid lines that of fresh air, each room of course having a flue of either kind.

The actual arrangement of the channels in the cellar for the hot-air and foul-air flues to terminate in, is not represented as it actually is, in the plate, for fear of obscuring the illustration of the principle. Fig. 25, pl. iv. is a cross or end section of the actual construction; *a a* is the partition wall separating the corridor from the side dormitories, as it appears in the cellar; H H H are the hot-air channels supplying the three stories respectively; v v v, the ventilating flues coming from the stories. The lower arrows show the course of the foul air as it enters the channels terminating under the shaft.

The upper arrows represent the fresh air entering from the reservoir impinging against the hot-water tubes, and then ascending by the perpendicular flues.

The registers slide before these openings, and are readily commanded through shutters left at convenient places in front.

The same arrangement is provided on the other side of the corridor.

The water-closets, bathing-rooms, &c, have the same downward ventilation as the galleries and dormitories. The shaft terminates in one of four chimney stacks, standing on the corners of the foundation of the dome.

D.

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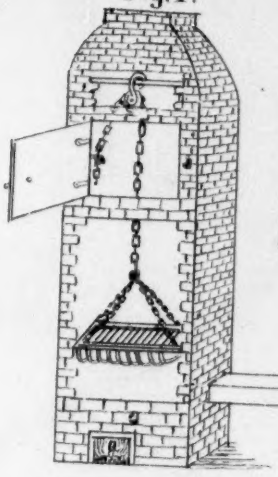
Fig. 1.



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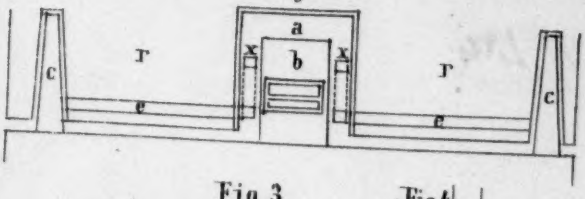

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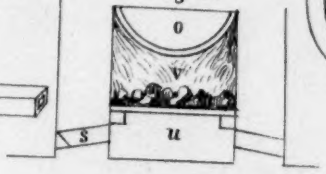

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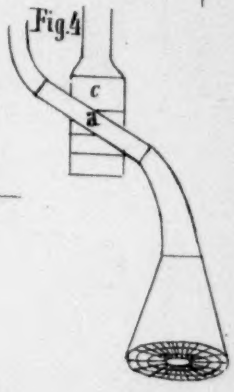

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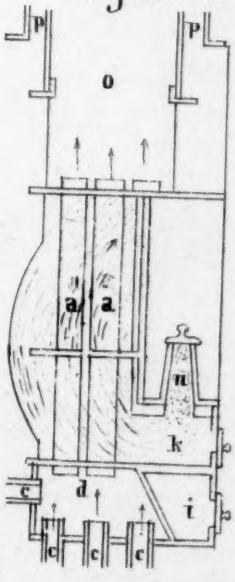

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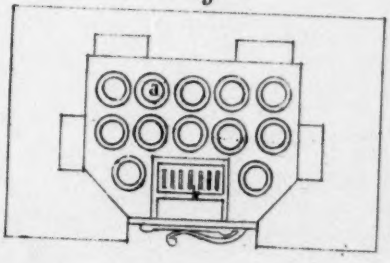

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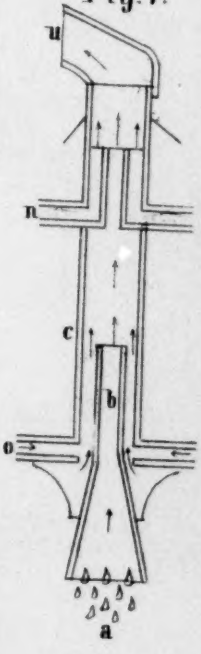

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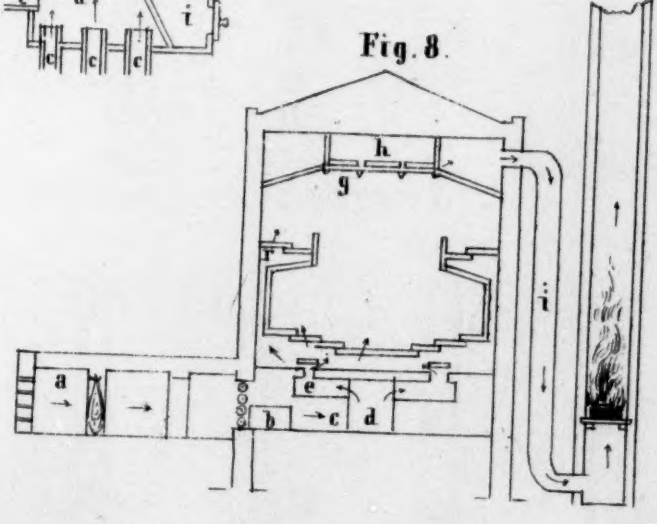

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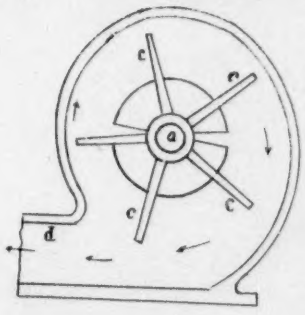
Fig. 22.



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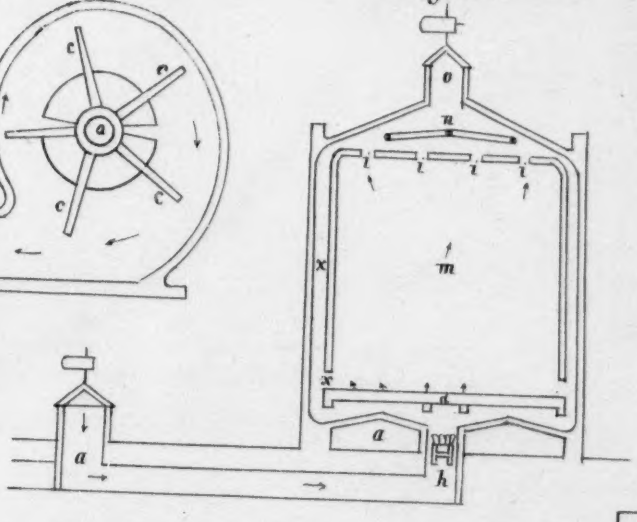

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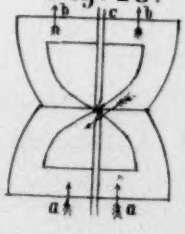

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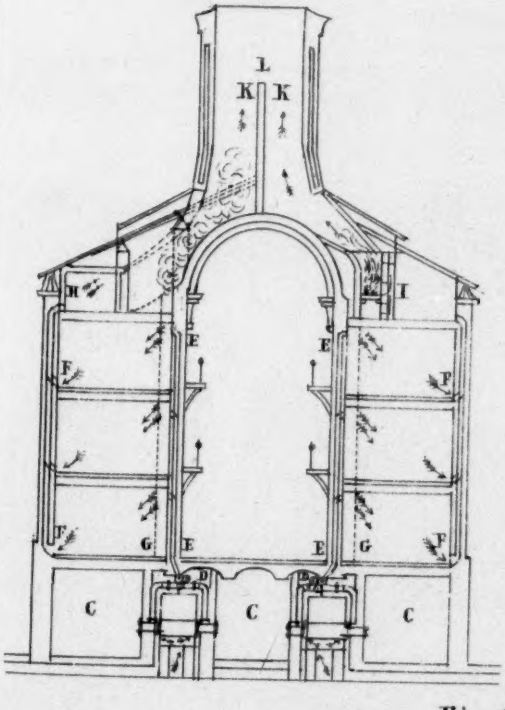

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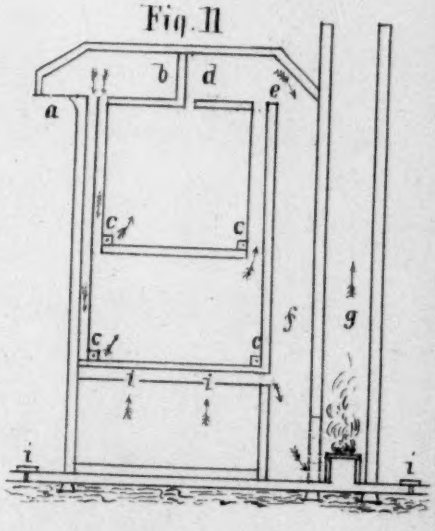

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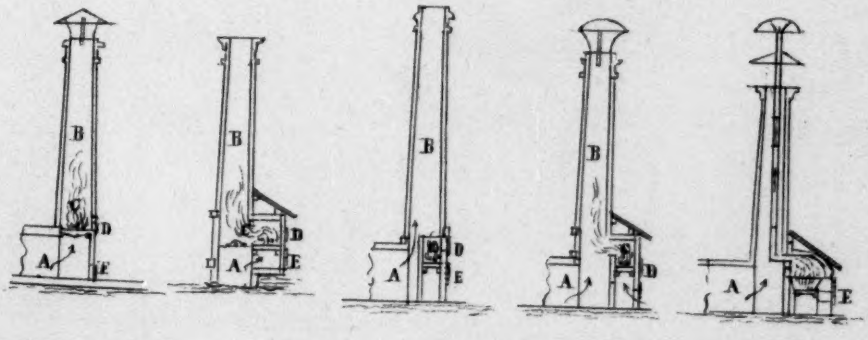

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Fig. 13.

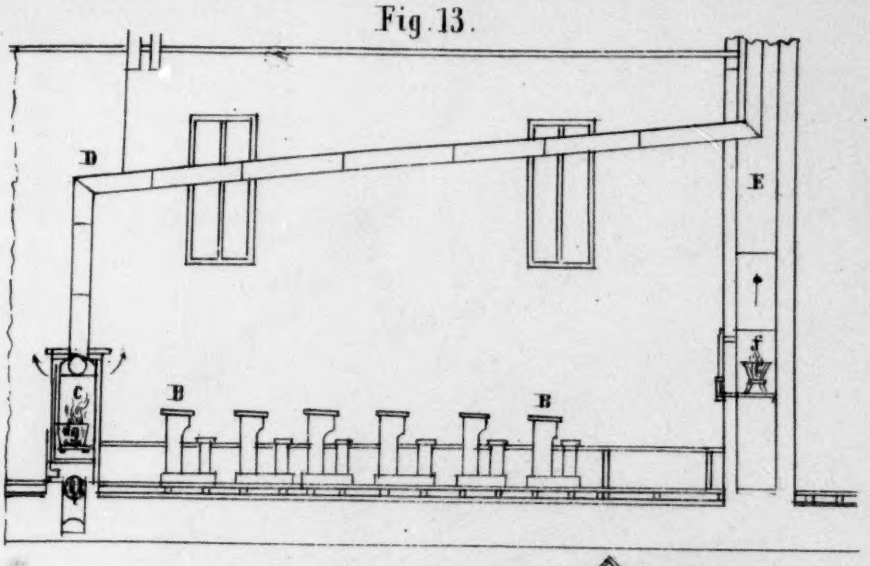


Fig. 14

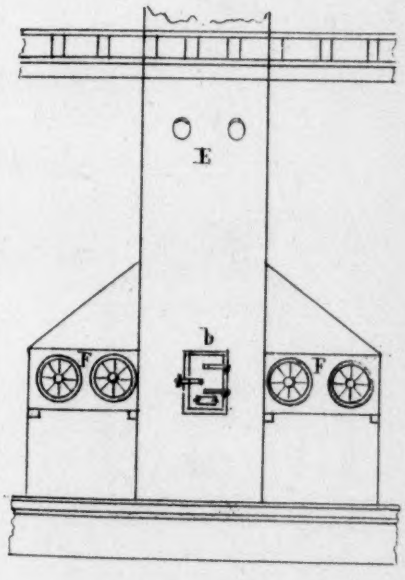


Fig. 15.

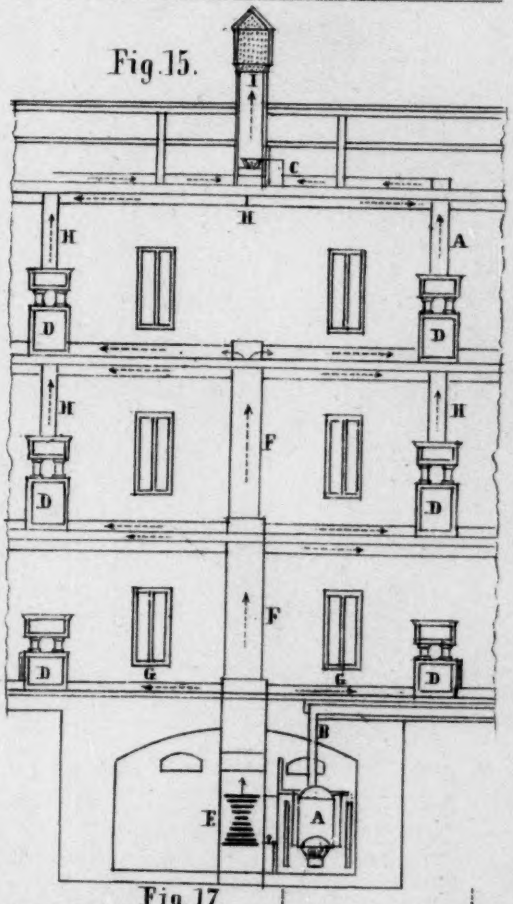


Fig. 16.

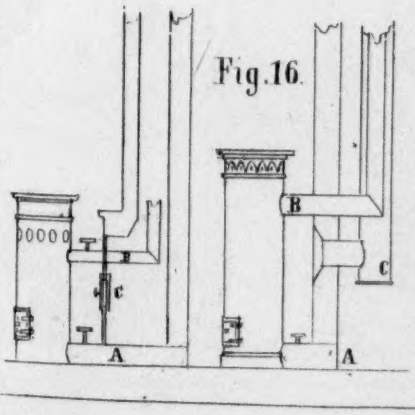
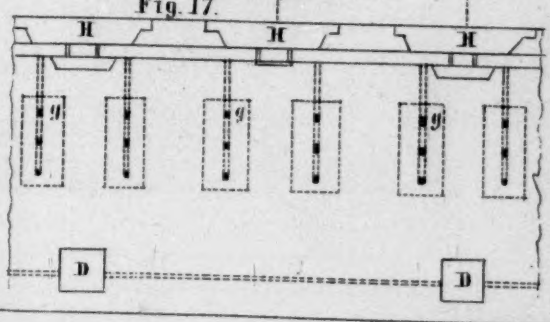


Fig. 17.



J.N. Bufford's Lith.

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Fig. 18.

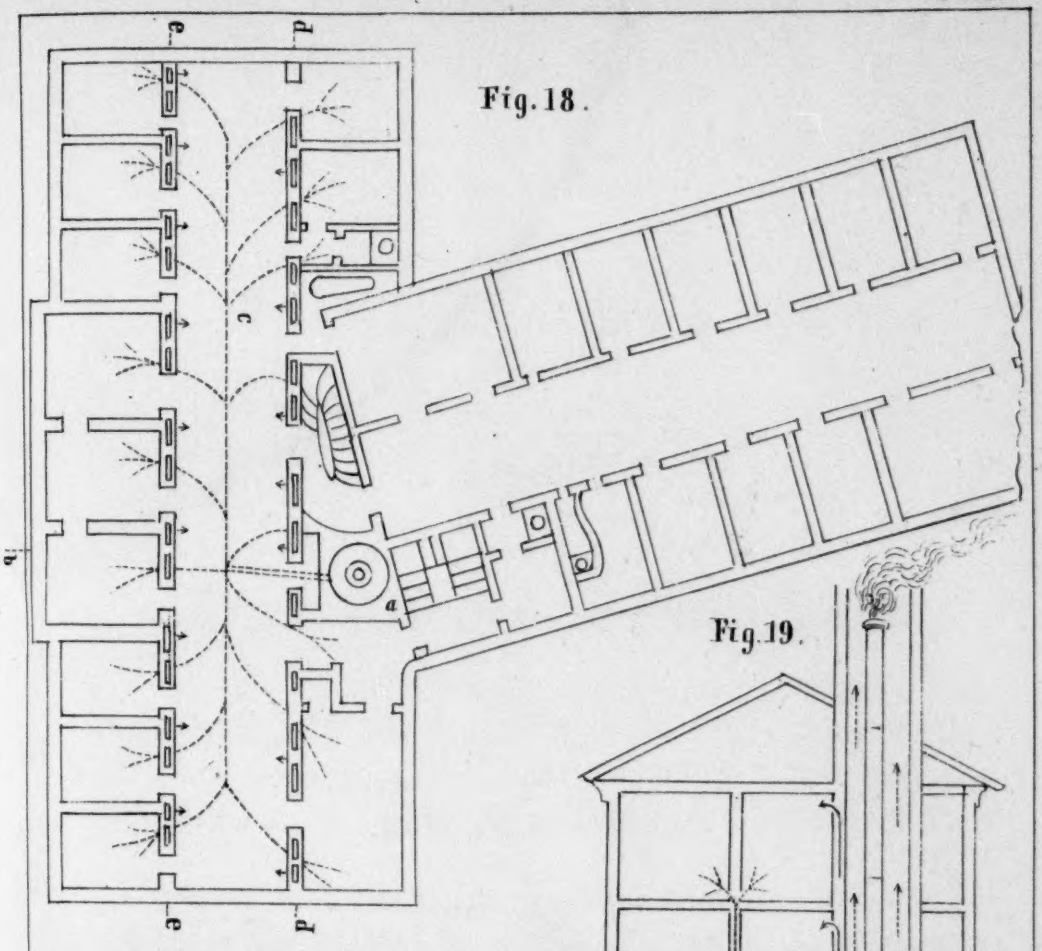


Fig. 19.

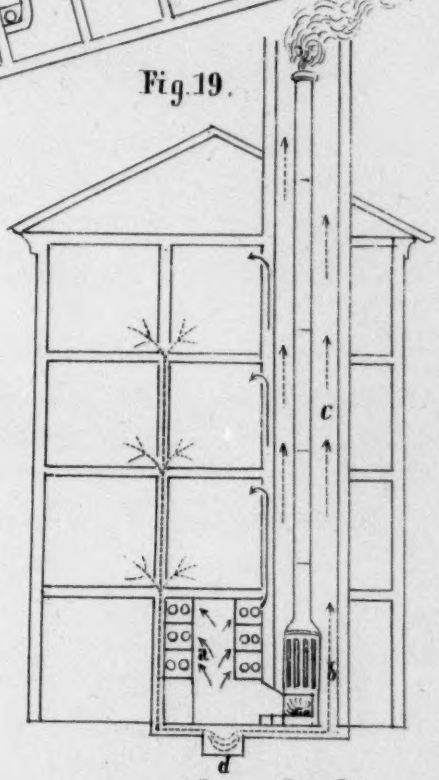


Fig. 20

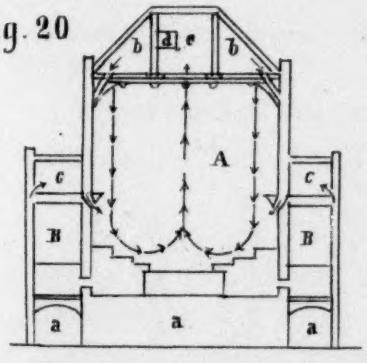


Fig. 25.

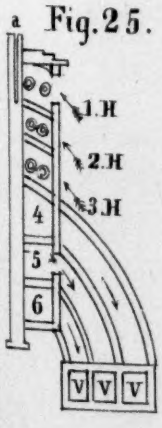
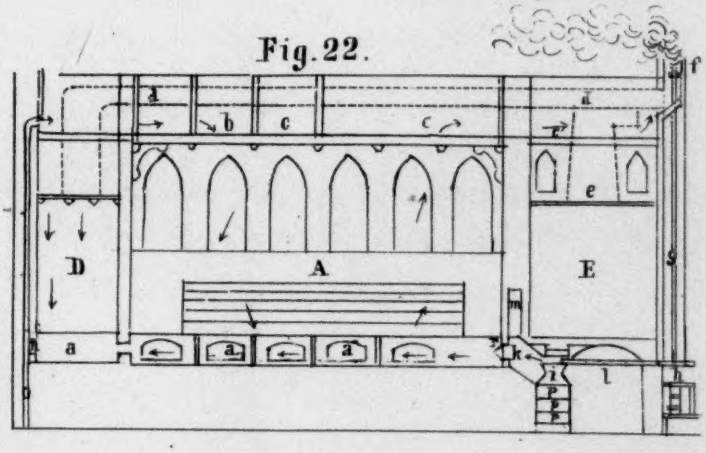


Fig. 22.



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APPENDIX.

1842.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held on Wednesday, May 25, at the Masonic Temple, Tremont Street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the meetings of the Counsellors were read.

The report of the Committee, appointed at the last meeting of the Counsellors, to ascertain and report to the Society the number of Fellows residing in each county, and within the limits of each District Medical Society, and the number of Counsellors to be elected in each, was read and accepted.

Letters were then read from the Secretaries of the Essex Southern, Barnstable, Hampshire and Hampden, Essex North District Medical Societies, stating the organization of the several Societies for the year 1842,—and nominating to the

Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Howe, of Billerica, Lewis, of Boston, Whitney, of Framingham, Dalton, of Lowell, Clark, of Andover, and Willard, of Uxbridge, were chosen Scrutineers.

The Scrutineers reported the following Fellows as having been elected Counsellors:

Essex Southern District Society. Andrew Nichols, Abel L. Peirson, Ebenezer Hunt, George Choate, Edward L. Coffin, Joseph Reynolds, Samuel Johnson.

Worcester District Society. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, George Willard, John G. Metcalf, Pierson T. Kendall, Joseph Stone, William Workman.

Berkshire District Society. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Benjamin Barrett, Atherton Clark, Gardiner Dorrance.

Southern District Society. Paul Spooner, Alexander Read, William Gordon, Amory Glazier, Le Roy M. Yale.

Barnstable District Society. Joseph Sampson, Aaron Cornish, Henry Tuck.

Hampden District Society. David Bemis, John Appleton, Jehiel Abbott, James M. Smith.

Essex North District Society. Rufus Longley, Benjamin Atkinson, Henry C. Perkins.

Bristol County (not included in District Society). Caleb Swan, Alfred Wood.

Franklin County. Stephen W. Williams, Alpheus F. Stone, Christopher Deane.

Middlesex County. Thomas Bucklin, Timothy Wellington, Zadok Howe, William J. Walker, John C. Dalton, Josiah Bartlett, John O. Green, Anson Hooker, Elisha Bartlett, Nehemiah Cutter, J. S. Hurd, C. F. Chaplin, Simon Whitney, Horatio Adams.

Nantucket County. Elisha P. Fearing.

Norfolk County. Nathaniel Miller, Rufus Wyman, Robert Thaxter, Jeremy Stimpson, Ebenezer Alden, Henry Bartlett.

Plymouth County. Nathan Hayward, Ezekiel Thaxter, Paul R. Nichols.

Suffolk County. James Jackson, George C. Shattuck, Jacob Bigelow, Enoch Hale, S. D. Townsend, John Ware, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, George W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, Jerome V. C. Smith, D. H. Storer, John Flint, John D. Fisher, Charles T. Hildreth, Charles G. Putnam.

Report of the Committee on the condition of the Library, was read and accepted.

Report of the Censors for the first Medical District, and the Society at large, was read and accepted.

The Treasurer submitted his annual reports.

The amount of expenses charged the Society is	$1245 56
The sums received amount to	1870 31
Leaving a balance in the hands of the Treasurer of	$624 75

From the Report on the Permanent Fund, it appears, that the whole is invested in the Massachusetts Hospital Life Insurance Company, and, with interest, amounts to $7508 89.

The Committee appointed to examine the books and accounts of the Treasurer, have attended to that duty, and report, that the books are correctly kept, and the account is correctly cast and vouched.

(*Signed,*) JOHN JEFFRIES,
Z. B. ADAMS.

Boston, May 25th, 1842.

Voted, To accept the reports of the Treasurer, and that of the Auditory Committee.

The following Report of the Committee appointed by the Counsellors to take the requisite measures to obtain the action of the Legislature upon the subject of a more effectual registration and return of births, marriages and deaths, was read and accepted.

MASSACHUSETTS MEDICAL SOCIETY.

The Committee appointed by the Counsellors to take the requisite measures to obtain, if possible, the action of the Legislature upon the subject of a more effectual registration and return of births, marriages and deaths, respectfully report:

That at the last session of the Legislature an Act was passed, entitled "An Act relating to the registry and returns of Births, Marriages and Deaths," which was approved by the Governor on the 3d of March last.* Although this act

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* *An Act relating to the registry and returns of Births, Marriages and Deaths.*

Be it enacted, &c. as follows:

Section 1. The Clerks of the several towns and cities in the Commonwealth shall annually, in the month of May, transmit to the Secretary of the Commonwealth, a certified copy of their Record of the Births, Marriages and Deaths of all persons within their respective towns and cities, which may come to their knowledge; shall state the number of births and marriages, and the number of deaths, with the

does not provide so effectually for a complete system of registration and return, as the Committee would have desired, they are not without sanguine hopes, that it may be so far carried into effect, as to be of important service to the cause of science and humanity; and, at least, prepare the way for a more perfect system hereafter. Much of the efficacy and value of this law will depend upon the degree of co-operation of physicians; especially in regard to the returns of deaths and their causes. The Committee, therefore, respectfully recommend that the Society express its interest in this subject, and the disposition of its Fellows to aid in carrying into effect the provisions of the law, by the adoption of the following Resolution:

Resolved, That the Fellows of the Massachusetts Medical Society will cheerfully aid in carrying into effect the provisions of "An Act relating to the registry and returns of Births, Marriages and Deaths," by furnishing information of the

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name, sex, age (and if an adult male, the occupation), and the names of the diseases, of which all persons have died, or are supposed to have died, together with the cause or causes of the death, of all such deceased persons, so far as they may be able to obtain a knowledge of the same from physicians, or others; and any Clerk who shall neglect to make such return, shall be liable to a penalty of ten dollars, to be recovered for the use of any town or city, where such neglect shall be proved to have existed.

SECTION 2. The Secretary of the Commonwealth shall prepare and furnish to the Clerks of the several towns and cities of this Commonwealth, blank forms of returns, as herein before specified, and shall accompany the same with such instructions and explanations as may be necessary and useful, and he shall receive said returns, and prepare therefrom such tabular results as will render them of practical utility, and shall make report thereof annually to the Legislature, and generally shall do whatever may be required to carry into effect the objects of this Act, and of the several provisions of the Revised Statutes not inconsistent with this Act.

Approved by the Governor, March 3, 1842.

deaths that may come under their observation, with their causes, and by any other means that may properly pertain to their duty as physicians.

ENOCH HALE,
EBEN'R. ALDEN,
D. H. STORER,
} *Committee.*

Boston, May 25, 1842.

The resolution recommended by the above Committee was adopted by the Society.

Voted, That a proposition to alter the 43d and 45th By-Law, be referred to the Counsellors.

At one o'clock, the Annual Discourse, was read by Dr. Williams, of Deerfield, on the subject of the "Medical History of Franklin County."

On motion of Dr. Hale, it was

Voted, That the thanks of the Society be presented to Dr. Williams, for his elaborate and interesting discourse.

Before the reading of the discourse, a motion was made by Dr. Spofford:

That application be made by this Society to the Legislature of this Commonwealth, so to alter the 3d Section of the Act of March, 1803, as to allow of the election of such officers by the Society as are now chosen by the Counsellors, and that a Committee be appointed to make such application.

After considerable discussion, the consideration of the subject was suspended by the arrival of the hour for the discourse; after which, the subject of the motion was further discussed, and upon the question being taken, it was decided in the negative; 46 voting in the affirmative, and 84 in the negative.

The Society, upon the recommendation of the Counsellors, proceeded to the consideration of the subject of the expulsion of Dr. John Starkweather, of Upton;—and it appearing that Dr. Starkweather had admitted to a member of the Society, that he had received notice to appear before the Society this day, and he having neglected so to do, it was

Voted, To expel Dr. Starkweather;

One hundred and forty-eight members voting in the affirmative; One hundred and fifty-eight members being present.

It was

Voted, That the Society approve of the course of the Secretary in not procuring wine for the dinner, provided by him, for the Society this day.

Voted, To dissolve the meeting.

Attest, GEO. W. OTIS, JR., *Recording Secretary.*

The Fellows of the Society then proceeded to the United States Hotel and dined together, to the number of two hundred and eighty-four.

Proceedings of the Counsellors.

OCTOBER MEETING, 1841.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at their room, Masonic Temple, October 6, 1841.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen, who had become Fellows of the Society, since the last meeting of the Counsellors.

A petition of the members of the Society, residing in the northern part of Essex county, to be constituted a District Society, to be called the Essex North District Medical Society—granted.

The following Report of the Committee on the petition of Dr. John Starkweather was read and accepted.

The Committee appointed at the last meeting of the Counsellors of the Massachusetts Medical Society to consider and report on the application of Dr. John Starkweather, of Upton, in the County of Worcester, for leave to withdraw from the Society, on account of physical infirmity, &c., report as follows:

That they appointed a day of meeting, for the Committee, at Uxbridge, and gave Dr. Starkweather seasonable notice of such appointment, and desired his attendance. Dr. Starkweather did not attend the meeting of the Committee. In the absence of an official conference, a majority of your Committee have seen and conversed with Dr. Starkweather upon the subject referred to them. The doctor, although somewhat lame, from chronic rheumatism, attends to his professional business as regularly and as promptly, we believe, as any physician, in the circle of our acquaintance; and what with his business *proper*, as a member of the Massachusetts Medical Society, and his business *improper*, rides more miles than any of his brethren of the vicinage. In view of these reasons, we do not advise that leave be granted to Dr. Starkweather to withdraw from the Society.

Your Committee further report, that Dr. Starkweather wholly disregards the 10th By-Law of the Society, by adver-

tising for sale, and offering to cure diseases by, a medicine, the composition of which he keeps a secret; which averment will be more fully set forth by the appended advertisement. In conversation with a majority of your Committee, the doctor acknowledged that the 10th By-Law was a good rule;—that he had broken it with his eyes open, and he hoped the Society would deal with him as leniently as they could.

All which, is respectfully submitted,

GEORGE WILLARD,
JOHN GEO. METCALF.

Uxbridge, October 5, 1841.

HEPATIC ELIXIR,

A new remedy for Jaundice, Dyspepsia, Indigestion, Weakness, and Sourness of the Stomach, Loss of Appetite, Lowness of Spirits, Headache, Asthma, Rheumatism, Female Obstructions and Weaknesses, and all other complaints arising from a diseased state of the liver and its secretions.

The health and vigor of the human frame depend entirely in the digestion; the digestion on the biliary secretions. It is so obvious, therefore, that any cause operating to vitiate those secretions must, of course, be productive of derangement and disease throughout the system.

The liver is the largest gland in the body, and from its minute and tardy circulation, the seat of disease is much oftener attached to that organ, than is suspected. Bilious disorders are insidious in their attacks, slow in progress, and much varied in symptoms. Hence, many fall victims to them, from the nature of the disease not being seasonably detected, or properly treated; whereby, the chain of diseased action becomes strengthened, and the links more difficult to be broken. So general is the prevalence of liver complaints, that this organ is, probably, the seat of most ailments unattended with Febrile action; and that the grand source of health and disease is connected with the healthy or disordered functions of the liver; and, also, that almost every chronic or lingering disease arises from some defect there.

The symptoms arising from chronic disease of the liver are so various as to almost baffle description. They do not all appear in any indi-

vidual case, but show themselves in different persons in great variety, both in extent, number and degree, as the disorder exists in every gradation, and often, for a long time, so slight as to cause no alarm, being nothing more than a sense of fulness after meals, with some soreness of the bowels, a disposition to drowsiness, eructations of wind, ringing in the ears, dizziness of the head, coldness of the extremities, followed by burning in the soles of the feet and palms of the hands, an unpleasant and sinking sensation in the pit of the stomach. Some cases are attended with watchfulness, or unrefreshing sleep disturbed by dreams. Pain, also, in either side, most frequently in the left, extending to the shoulder blades. The mind is often fretful and irritated by the most trifling causes; the memory becomes impaired, and there is a general disinclination for bodily or mental exertion. The stomach sympathizes, and is so much disturbed as to lead the patient to suppose that his complaints arise from an affection of this organ, while it is only affected by being in the vicinity of the real disease. The bowels become irregular, costiveness alternating with diarrhœa, and frequently distend with gas. There is often a loss of appetite, at other times an unnatural craving of food. The urine becomes high colored, and is frequently voided with pain. The countenance assumes a sallow, cadaverous, or sickly hue. Many other symptoms might be named, but those already enumerated are the most prominent and common.

This medicine is not palmed upon the public as a panacea for all the "ills that flesh is heir to," but after an experience of more than thirty years in the practice, and careful observation of the treatment and remedies recommended by others in this class of diseases; and after seeing the benefits which have resulted from it, in many hundred cases, the proprietor feels warranted in recommending it, as superior to any preparation ever before offered. Being of a vegetable production, it may be taken with perfect safety, for any term of time, by persons of the most delicate constitutions, however low they may have been reduced by disease.

The most distressing cases of stone in the gall bladder have been cured by it; and in no case of this kind, where it has been used, has it failed of the most complete success.

It will be found a sure remedy for blotched faces, so troublesome to young persons. If taken in season, as a preventive, it will (by keeping the biliary and digestive organs in a healthy state) defend the system from the effects of fever and ague, the yellow, bilious, and autumnal fevers, which prey upon those and those only who are predisposed thereto by disease and derangement of those organs.

If costiveness is an attendant symptom, it will be necessary to take

a gentle cathartic, once in three or four days, while the bowels remain in that state. A blue pill at night, with a dose of Rhubarb, Castor Oil, or Senna on the morning following, will occasionally be found efficient.

It should be borne in mind that many of the diseases for which this medicine is prescribed may be of long standing, and obstinate in character so as to require a long time to make an impression on them. In such case, a steady and patient perseverance is necessary. It much too often happens that patients, reduced by disease, will, through despondency, discontinue the use of remedies, long before their true value can be tested, which, if persisted in, would be productive of the most beneficial results.

☞ The dose for an adult, is put at a tea-spoonful, three times a day; yet persons of weak and irritable stomachs will begin with a smaller quantity, and gradually increase the dose to what the stomach will retain without disturbance.

The following certificates, amongst many voluntarily given, are herewith published for the purpose of convincing the public, that the article is just what it purports to be, a valuable remedy for the diseases above named.

The Hepatic Elixir is prepared by J. STARKWEATHER, sole proprietor, Upton, Mass., by whom each bill of directions will be signed in his own hand-writing.

For sale wholesale and retail by CHARLES DYER, Jr., General Agent, South Main-st.; H. Stockbridge, Woonsocket Falls; Sam Green and Daniel Green, Pawtucket, R. I.; Clarke & Haskell, Lonsdale.—And by the Proprietor, and Druggists generally throughout the country.

CERTIFICATES.

This certifies that I have made use of Dr. Starkweather's Hepatic Elixir for several months past, and can truly say, *I have experienced the most beneficial results from its use.* For three or four years previous to my taking this medicine, I was seriously afflicted with Dyspepsia or Liver Complaint. I had consulted several physicians, and made use of various kinds of pills and other medicines before the public, some of which had an injurious effect, others seemed to give temporary relief, without in the least degree removing the cause of my complaint. I have been subject to a very weak and sour stomach, and been for weeks together, unable to eat the most harmless and soluble kinds of food without severe distress at the stomach, or vomiting it up immediately after taken. This was accompanied sometimes with a loss of appetite, at other times with an appetite, that neither any kind nor quantity of food could satisfy. I was troubled about a year before making use of this medicine, with a hard pain in the left side, attended with a kind of languor, great depression of spirits, and a general debility of the whole system. Nearly all those complaints or symptoms, which I have mentioned, with many others, are now entirely cured from the use of this Elixir, and what are not com-

pletely removed, do not occur so frequent, with far less violence, and are constantly decreasing. Therefore, from my own experience, and from what I know of the effects of the medicine generally, *I feel justified in recommending it to the public, as a perfectly safe and highly valuable medicine for all those complaints which it is designed to cure.*

GEO. W. THURSTON.

Grafton, Aug. 27, 1840.

—

This may certify that for several years I was subject to frequent and severe attacks of Colic, and which continued to increase upon me, both in severity and frequency, until I made use of the Hepatic Elixir, prepared by Dr. Starkweather, and can truly say, that I think myself wholly cured of the complaint, not having the least symptom of it, for the last six months past. I do, therefore, cheerfully recommend it to the public as a safe and valuable medicine.

LEVI L. LELAND.

Grafton, Oct. 1, 1840.

—

This may certify that I have been afflicted with Biliary Concretions (Gall Stones), and for a long period was subject at times to the most excruciating distress, and for which I have taken the Hepatic Elixir, prepared by Dr. Starkweather, and have obtained complete *relief, and view it to be a valuable remedy in such complaints.*

MARTHA JACKSON.

Unionville, Sept. 26, 1840.

—

This certifies that for twelve years I was afflicted with sickness, and during this time I applied to a number of the most skilful and celebrated physicians we have among us, without any permanent benefit, as my complaints continued to increase upon me.

To describe all my ill feelings would be out of my power. I had no appetite, was troubled with a severe pain in my side, great distress after taking food, a dull, heavy feeling in my head, almost amounting to stupidity, numbness of my limbs, could get no refreshing sleep, my food did me no good, my bowels were continually out of order, and I was obliged to take physic often, which would only give me momentary relief; all my difficulties continued to increase to such a degree, that I gave up all kinds of labor, and considered myself incurable. About two years ago, I procured a bottle of Dr. Starkweather's Elixir, which I took according to directions, and soon had the satisfaction to find my health improving, which gave me confidence in the medicine. I continued the use of it until I took about four bottles, which has restored me to as good a state of health as I ever enjoyed, so far as I know. I have labored the present season on a farm, and have not lost one days labor, nor one meal of victuals, during the time. So I can safely say, that the Hepatic Elixir, and this alone, has restored my health, for I have taken no other medicine since I commenced using it.

GIDEON HOLLEY.

Uxbridge, Aug. 20, 1840.

—

This certifies that my wife, *Mary Ann Johnston*, was for eight years afflicted with fits, of frequent occurrence, both by night and by day. She was also troubled with sourness of stomach, numbness and coldness of her limbs, dizziness of the head, loss of memory, obstinate costiveness, and many other complaints, unnecessary to mention, by which her health was reduced to a most deplorable state, and she was unable to perform any labor.

I had but little, if any, hopes of her recovery, as she had been for a long time under the first medical treatment without any permanent benefit. Having heard of the good effects produced by the Hepatic Elixir, prepared by Dr. Starkweather, she was induced to give it a trial; and I am pleased to say, that she has been benefited by it, far beyond my most sanguine expectations. She has taken five bottles of it; her health is now good, and she is fully able to attend to all her domestic concerns.

LEONARD JOHNSTON,
MARY ANN JOHNSTON.

Providence, R. I., Dec. 1, 1840.

On motion, it was

Voted, That the subject of Dr. Starkweather's petition, &c., be referred again to the same Committee, with instructions to prepare specific charges against Dr. Starkweather; to give him a copy thereof, and inform him that he will have an opportunity to be heard thereon, at the next meeting of the Counsellors.

Report of the Treasurer on the state of the demands against the members in the Berkshire District accepted.

Voted, That the Treasurer, under the direction of the President, be authorized to close the accounts of the Berkshire delinquent members.

Voted, That the thanks of the Counsellors be presented to Dr. Henry H. Childs, for his energetic measures to settle the accounts of the Society.

The subject of the publication of another volume of the Library of Practical Medicine was referred to the Committee on Publications, and the Treasurer.

Drs. Ebenezer Stevens, of Boston, George W. Snow, of Middleboro', and Chester Thomas, of New Salem, were elected Fellows.

FEBRUARY MEETING, 1842.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at their room, Masonic Temple, February 2d, 1842.

The Presid[illegible] not being present, the meeting was called to order by the [illegible]ary, who stated that he had received a note from the Pr[illegible]orming him of his inability to attend, by reason of

Dr. Bigelow, the [illegible]llor present, then took the chair.

The record of the last meeting was read.

The Corresponding Secretary reported the names of the gentlemen, who had become members of the Society, since the last meeting of the Counsellors.

On motion of Dr. Hale, it was

Voted, That the Corresponding and Recording Secretaries, with the Librarian, be a Committee to ascertain and report to the Society at the next annual meeting, the number of Fellows then residing in each county, and within the limits of each District Medical Society, and the number of Counsellors to be elected in each.

Drs. Z. B. Adams and Jeffries were chosen a Committee to audit the Treasurer's accounts.

Drs. Otis and Flint were chosen a Committee to examine the Library.

Drs. Putnam, J. V. C. Smith, and Homans were chosen a Committee to procure kine-pock matter for the Society.

The Committee on the case of Dr. John Starkweather, of Upton, presented a copy of the notice to him of charges preferred against him, and a subsequent report to the Counsellors of their proceedings, as follows:

To Dr. John Starkweather:

At a meeting of the Counsellors of the Massachusetts Medical Society, held at Boston, October 6, 1841, it was

"*Voted,* That the subject of the petition to Dr. Starkweather, for leave to resign his Fellowship, be recommitted to Drs. Willard, Metcalf, and Workman, with instructions to prepare specific charges against Dr. Starkweather; to give him a copy thereof, and inform him that he will have an opportunity to be heard thereon, at the next meeting of the Counsellors."

In pursuance of the instructions of the foregoing vote, the undersigned, a majority of the Committee aforesaid, have prepared the following specific charge:

That Dr. Starkweather, contrary to the 10th By-Law of the Massachusetts Medical Society, publicly advertises for sale, a medicine, called the Hepatic Elixir, the composition of which he keeps a secret; and, also, offers to cure diseases by the same medicine, still keeping its composition a secret.

A copy of this communication will be reported to a meeting of the Counsellors of the Massachusetts Medical Society, to be holden at the Masonic Temple, at Boston, on Wednesday, the 2d day of February next, at 11 o'clock, A. M., at which time and place any communication from you, either oral or written, will be received.

GEORGE WILLARD,
JOHN G. METCALF, } *Committee.*

Uxbridge, January 31, 1842.

The Committee, to whom was referred the petition of Dr. John Starkweather, for leave to resign his Fellowship, &c., state that the report on this subject by the undersigned, dated at Uxbridge, January 31, 1842, was handed by the Committee to Dr. Starkweather, who, on perusing the same, declared that the charge was not true,—that he makes no secret of the composition of the Hepatic Elixir, but that he has repeatedly divulged it to his medical brethren. So far as has come to the knowledge of your Committee, the Doctor has given different accounts of the composition of his medicine; he has never to our knowledge given any one a recipe, stating the proportion of the ingredients which enter into its composition;—he acknowledges that he advertises for sale, and offers to cure diseases by, the medicine in question, and declares that he shall continue to do so. We desire this may be considered as a supplement to our report above-mentioned.

GEORGE WILLARD,
JOHN G. METCALF, } *Committee.*

Boston, February 2, 1842.

On motion, it was

Voted, That the Counsellors recommend to the Society, at their next annual meeting, to expel Dr. Starkweather from the Society.

Voted, That the Recording Secretary furnish Dr. Starkweather with a copy of this vote.

The subject having been referred to the Counsellors, by the Society at last annual meeting, it was, on motion of Dr. Jackson,

Voted, That the Counsellors recommend to the Society not to alter the 4th Section of the 2d By-Law.

MAY MEETING, 1842.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Thursday, May 26, 1842, at 10 A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen, who had become Fellows of the Society, since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Bartlett, of Lowell, Alden, of Randolph, and Z. B. Adams, of Boston, were appointed Scrutineers.

Jacob Bigelow, was chosen *President*; Robert Thaxter, *Vice President*; Solomon D. Townsend, *Corresponding Secretary*; Samuel Morrill, *Recording Secretary*; Winslow Lewis, Jr., *Librarian*; Woodbridge Strong, *Treasurer*.

Censors. *For the Society at large, and the first Medical District*, Drs. John Jeffries, Z. B. Adams, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

For the second Medical District, Drs. B. F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, and Joseph Sargeant.

For the third Medical District, Drs. S. W. Williams, David Bemis, Gardiner Dorrance, John Appleton, and Edward E. Denniston.

For the fourth Medical District, Drs. H. H. Childs, R. Fowler, A. G. Welsh, R. Worthington, and N. S. Babbitt.

Drs. Hale, Homans, and Storer were chosen Committee on Publications.

Drs. Lewis, Otis, and Hooker were chosen Committee on Resignations.

Dr. Charles W. Wilder, of Leominster, was chosen to deliver the address, at the next annual meeting of the Society.

The report of the Censors for the first Medical District and for the Society at large, was then read.

Report on the Library read and accepted.

Report of the Treasurer on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, read and accepted. [See Records of Society, May, 1842.]

Voted, That the thanks of the Counsellors be presented to Dr. Wyman, for his able and impartial services, as President of the Society.

Voted, That the thanks of the Counsellors be presented to Dr. Batchelder, for his faithful and punctual attendance to the best interests of the Society, as Vice President.

Voted, That the thanks of the Counsellors be presented to Dr. George W. Otis, for his faithful and highly satisfactory

services, as Recording Secretary, the period he has been in office.

Voted, That the Committee on Publications select and publish a volume of the Library of Practical Medicine, to be distributed at the next annual meeting of the Society, one copy to each District Society's Library, and to each retired member who shall apply for it, and to each Fellow who shall have paid his assessments; provided that the expense shall not exceed six hundred dollars.

Voted, That Drs. Jackson, Peirson, and Homans constitute a Committee, to consider and report, whether more convenient and permanent accommodations can be obtained for the use of the Society.

It was

Voted, That the Treasurer, with the concurrence of the President, shall have the power to settle all accounts with delinquent Fellows, whose debts are of more than four years standing, in any way deemed advisable by them.

This vote to continue in force one year.

Dr. Appleton read an extract from the records of the Hampden District Medical Society, requesting authority to hold their meetings, except the annual meeting for the choice of officers, in any place within the county of Hampden, which they may deem expedient.

On motion of Dr. Jackson, it was

Resolved, That the Counsellors consider, that the Hampden District Medical Society have authority to hold any meeting, other than their annual meeting, at any place, within the county of Hampden.

On a motion of Dr. Jeffries, that the Counsellors recommend to the Society, that the 41st "By-Law" be altered, and amended to read as follows. The certificates for such persons as are described in the preceding By-Law shall be in

the following form. The letters testimonial of A. B., of——, have been examined by the Board of Censors and found satisfactory. He is accordingly admitted to all the privileges of those who have been examined by the Censors.

C. D., President of Censors. } E. F., Secretary of Censors. }

Dated at ——, on —— day of ——, Anno Domini.

It was

Voted, That the whole subject of certificates of license be referred to a Committee of three, consisting of Drs. Jeffries, Hale, and Wilder.

A motion of Dr. Peirson, that the Counsellors recommend to the Society, that the third section of the thirty-eighth By-Law be modified, so as to allow of the attendance on two full courses of lectures, at some recognized medical school be received, as an equivalent for a compliance with the requirements of this section, was also referred to the same Committee. Also, a motion of Dr. Appleton, of Westfield, that the Counsellors recommend to the Society, at their next annual meeting, to amend the second section of the forty-third By-Law, by striking out the words "Recording Secretary," and inserting either of the Secretaries, was referred to the same Committee.

Voted, That the thanks of the Massachusetts Medical Society be presented to Dr. Civiale, of Paris, for the valuable present of his works on "Calculous Affections," and on the diseases of the "Genito-Urinary Organs."

Dr. Milton Fuller, of Medford, was balloted for, and elected Fellow of the Society.

Voted, To dissolve the meeting.

There has been no resignation of Fellowship since the last publication.

Dr. John Starkweather, of Upton, has been expelled from the Society.

The following gentlemen have become Fellows of the Society, since the last annual publication:

In 1841, James Deane, Greenfield; Roderick A. White, Granville; Marcus A. Shearer, Palmer; Jesse W. Rice, Wilbraham; John Hoyt, Natick; Samuel L. Abbott, Jr., Boston; William A. Briggs, Boston; Joseph D. Mansfield, South Reading; Charles F. Foster, Boston; Samuel A. Orr, Bridgewater; Ebenezer Stevens, Boston; Chester Thomas, New Salem; Washington B. Alden, Ludlow; Albert White, Shutesbury; William T. Parker, Bradford; George W. Symonds, Littleton; William H. Prince, Salem; Erastus O. Phinney, Boston; Henry O. Stone, Boston; John B. Bridgman, Springfield; Stephen Champlin, West Springfield; George Seymour, Springfield; Joseph P. Nichols, Attleborough; James C. Parker, Shirley; Edward M. Wheeler, Paxton.

In 1842, Alvan Smith, Monson; James M. Nye, Lynn; Charles Mifflin, Boston; Leonard Morgan, Leyden; Asa Lincoln, Brimfield; Amasa Davis, Palmer; Otis E. French, Boston; Charles F. Hoffendahl, Boston; Nathan Allen, Lowell; N. Quincy Turrell, Sutton; Johnson Clark, East Cambridge; Frederick Hartman, Boston; Aaron G. Babcock, Waltham; Jonas M. Smith, Amherst; Horatio Thomson, Belchertown; Artemas Bell, Southampton; James Thomson, Northampton; —— Goodrich, Ware; E. G. Kelly, Newburyport; F. W. D. Osgood, Templeton; C. F. Winslow, Nantucket; Augustus G. Stickney, Townsend; Jonas C. Harris, Hopkinton; Lucius M. Scammell, Hopkinton; A. Sumner Haskell, Deerfield; Milton Fuller, Medford; Louis M. F. Mighault, Boston; Geo. A. Hammatt, Boston.

Officers of the Massachusetts Medical Society.

ELECTED MAY 26, 1842.

JACOB BIGELOW, *President.*

ROBERT THAXTER, *Vice President.*

SOLOMON D. TOWNSEND, *Corresponding Secretary.*

SAMUEL MORRILL, *Recording Secretary.*

WOODBRIDGE STRONG, *Treasurer.*

WINSLOW LEWIS, JR., *Librarian.*

CENSORS. *For the Society at large, and the first Medical District,* John Jeffries, Z. B. Adams, Anson Hooker, W. Lewis, Jr., G. W. Otis, Jr.

For the second District, B. F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, Joseph Sargent.

For the third District, S. W. Williams, David Bemis, Gardiner Dorrance, John Appleton, Edward E. Denniston.

For the fourth District, H. H. Childs, R. Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

Committee on Publications, E. Hale, J. Homans, D. H. Storer.

Committee on Resignations, W. Lewis, G. W. Otis, A. Hooker.

Charles W. Wilder, M. D., of Leominster, is appointed to read the next annual discourse.

Officers of District Medical Societies.

ESSEX SOUTHERN DISTRICT SOCIETY. Andrew Nichols, *President.* Abel L. Peirson, *Vice President.* George Choate, *Treasurer.* William O. Richardson, *Librarian.* William Mack, *Secretary.*

Worcester District Society. Charles W. Wilder, *President.* Joseph Stone, *Vice President.* Wm. Workman, *Secretary.* Joseph Sargent, *Treasurer.* Henry G. Davis, *Librarian.*

Berkshire District Society. Wm. H. Tyler, *President.* Royal Fowler, *Vice President.* Robert Worthington, *Secretary.* Millen Sabin, *Treasurer, Librarian,* and *Cabinet-keeper.*

Hampshire District Society. Benjamin Barrett, *President.* Gardiner Dorrance, *Vice President.* Edward G. Ufford, *Secretary.* Charles A. Hall, *Treasurer.* Daniel Thompson, *Librarian.*

Southern District Society. Paul Spooner, *President.* John Perkins, Jason H. Archer, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Joseph Sampson, *President.* Aaron Cornish, *Vice President.* Henry Tuck, *Secretary.* James B. Forsyth, *Treasurer.* Elijah W. Carpenter, *Librarian* and *Curator.*

Hampden District Society. Joseph H. Flint, *President* John Appleton, *Secretary.* James M. Smith, *Treasurer.* William A. Davis, *Librarian.*

Essex North District Society. [Charter granted October 6, 1841. Place of meeting, Bradford. Includes the towns of Amesbury, Andover, Boxford, Bradford, Georgetown, Haverhill, Methuen, Newbury, Newburyport, Rowley, Salisbury, and West Newbury.] Jonathan G. Johnson, *President.* Rufus Longley, *Vice President.* Isaac G. Braman, *Secretary.* Isaac Boyd, *Treasurer.* Jeremiah Spofford, *Librarian.*

APPENDIX.

1843.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held on Wednesday, May 31st, at the Masonic Temple, Tremont Street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors were read.

The report of the Committee, appointed at the last meeting of the Counsellors, to ascertain and report at the next annual meeting of the Society, the number of Fellows then residing in each county, and within the limits of each District Medical Society, and the number of Counsellors to be elected in each, was read and accepted.

Letters were then read from the Secretaries of the Essex South, Hampshire, Southern, Hampden, and Essex North, District Medical Societies, stating the organization of the several Societies for the year 1843,—and nominating to the

Society the Fellows that had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Willard, of Uxbridge, L. V. Bell, A. Thomas, G. W. Otis, Jr., and Dalton, of Lowell, were appointed Scrutineers.

The Scrutineers reported the following Fellows as having been elected Counsellors.

Essex Southern District Society. Drs. Andrew Nichols, Abel L. Peirson, Ebenezer Hunt, George Choate, Edward L. Coffin, Joseph Reynolds, Samuel Johnson.

Worcester District Society. Drs. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, George Willard, John G. Metcalf, Pearson T. Kendall, Joseph Stone, William Workman.

Berkshire District Society. Drs. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, Addison S. Peck, Hervey Orcutt, E. G. Ufford.

Southern District Society. Drs. Paul Spooner, Alexander Read, Amory Glazier, Leroy M. Yale.

Barnstable District Society. Drs. Benjamin F. Seabury, Henry Tuck, John Harpur.

Hampden District Society. Drs. William Bridgman, David Bemis, Jehiel Abbott, James M. Smith.

Essex North District Society. Drs. George Cogswell, John Atkinson, Martin Root.

Franklin County. Drs. Alpheus F. Stone, Stephen W. Williams, Christopher Deane.

Middlesex County. Drs. Thomas Bucklin, Timothy Wellington, Zadok Howe, John C. Dalton, Josiah Bartlett, Anson Hooker, John O. Green, Nehemiah Cutter, Elisha Bartlett,

J. S. Hurd, C. F. Chaplin, Simon Whitney, Horatio Adams, Hiram Hosmer, Luther V. Bell.

Norfolk County. Drs. Nathaniel Miller, Robert Thaxter, Jeremy Stimpson, Ebenezer Alden, Ebenezer Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County (not included in District Society). Drs. Nathan Hayward, Ezekiel Thaxter, and Paul L. Nichols.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, J. D. Fisher, C. G. Putnam, J. B. S. Jackson, Alexander Thomas, Ephraim Buck.

The report of the Committee on the Library and Cabinet, was read and accepted.

The Treasurer submitted his annual reports.

The amount of expenses for the year is . .	$1813 94
The sums received amount to	1909 92
Balance in the hands of the Treasurer	$95 98

From the Report on the Permanent Fund, it appears that the whole is invested in the Massachusetts Hospital Life Insurance Company, and now amounts to $7921 88.

The Committee appointed to examine the books of the Treasurer, have attended to that duty, and report that the books are correctly kept, and the account is correctly cast and vouched. They have also examined the items of the Permanent Fund, and the amount is $7921 88.

(*Signed,*) C. G. PUTNAM,
ANSON HOOKER.

Voted, to accept the reports of the Treasurer, and that of the Auditing Committee.

A Committee, appointed at a previous meeting of the Counsellors, recommended at the October meeting that the following alterations in the By-laws be offered at their next annual meeting for their approval. That the last clause of the second section of the 35th By-law, beginning with the words "or at least," and also the 3d section of the 38th By-law be stricken from the By-laws. Also that in the 43d By-law, in the second paragraph, at the fourth line, the word "recording" be stricken out, and the word "corresponding" be inserted before the word "secretary."

Read and accepted.

The Committee appointed to report at the February meeting on the list of books to be required of candidates for an examination before the Censors, reported, That it be recommended to the Society that the 17th By-law be repealed.

Also that the last clause in the 35th By-law, beginning with the words "or at least," be repealed.

Also that the third section of the 38th By-law, beginning with the words "In every case," be repealed.

Read and accepted.

A substitute being thought necessary, by the Counsellors, for a part of the 17th By-law, Drs. Peirson, Jeffries, and Lewis, were appointed a committee to report one forthwith. This committee recommended to the Society that their fifteenth order be amended, by striking out all after the words "recording secretary," and adding the following, "by publishing the same in three newspapers, in three different counties within this Commonwealth."

Read and accepted.

The following resolve offered by Dr. Walker at their February meeting, That the committee on publications be hereafter selected in successive years, from such of the counties, in succession, of this Commonwealth, the Fellows in which, or through their counsellors, may not signify their desire to be excused from that service, was by a vote of the Counsellors recommended to the Society.

Read and indefinitely postponed.

The following resolve was offered by Dr. Fisher, That the Counsellors be requested to consider whether this Society may not effectively engage in a series of statistical and other investigations, which would be advantageous to Medical Science and Public Hygiene; and to report on the subject at the next annual meeting.

Voted, That it be referred to the Counsellors.

At 1 o'clock, the annual discourse was read by Dr. Wilder, of Leominster, on *The Causes, Symptoms, and Treatment of Consumption.*

On motion of Dr. Peirson, of Salem, it was voted that the thanks of the Society be presented to Dr. Wilder, for his highly interesting, and independent discourse.

Voted, To dissolve the meeting.

Attest, SAMUEL MORRILL, *Recording Secretary.*

The Fellows of the Society then proceeded to the hall over Worcester Railroad depot, opposite the United States Hotel, and dined together, to the number of two hundred and eighty-five.

Proceedings of the Counsellors.

OCTOBER MEETING, 1842.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at their room, Masonic Temple, Tremont St., on Wednesday October 5th, 1842, at 11 A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since the last meeting of the Counsellors.

The committee appointed at the last meeting of the Counsellors to consider and report whether more convenient and permanent accommodations can be obtained for the use of the Society, have attended to this service, and respectfully report; The committee have not been able to find any room or rooms, offering decided advantages over those now used by the Society, and those which they have examined have been held at much higher rents than those now in use. The committee are not without the hope, that at some other time there may be more success in seeking the object proposed by the Counsellors, and they venture to recommend that when any rooms, apparently fitted for the purposes of the Society, may become known to any of the Counsellors, he should make the same known to the officers of the Society. Which is respectfully submitted by the Committee.

JAMES JACKSON,
For the Committee.

Accepted.

All further measures necessary to increase the light or warmth of the room now occupied by the Society, were re-

ferred to the Recording Secretary, with the advice of the President.

The committee appointed at the last meeting of the Counsellors to consider certain alterations of the By-laws to be proposed to the Society, offer the following resolution as their report.

Voted, That the Counsellors recommend to the Society, at their next annual meeting, to amend the By-laws as follows: That the last clause of the second section of the 35th By-law, beginning with the words "or at least," and also the third section of the 38th By-law, be stricken from the By-laws.

Also, That in the 43d By-law, in the second paragraph, at the fourth line, the word "Recording" be stricken out, and the word "Corresponding" be inserted before the word "Secretary."

JOHN JEFFRIES,
For the Committee.

Report accepted.

On motion of Dr. Hale, it was voted, that a committee be appointed to consider the expediency of adopting the third edition of the Pharmacopœia of the U. S., or of taking any other measures in regard to a Pharmacopœia for this Commonwealth.

Voted, That this committee consist of Drs. Bigelow, Hale, and Townsend.

On motion of Dr. Homans, it was voted that a committee of three be appointed to report on the subject of preparing a list of books required to be studied by medical and surgical pupils, previously to, and to qualify them for an examination before the Censors.

Voted, That this Committee consist of Drs. Bigelow, Ware, and Z. B. Adams.

FEBRUARY MEETING, 1843.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's rooms, Masonic Temple, Tremont St., on Wednesday, Feb. 1st, 1843, at 11 o'clock A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of gentlemen who have become Fellows of the Society since the last meeting of the Counsellors.

The committee appointed to report on the list of books to be required of candidates for an examination before the Censors, beg leave to report, That it be recommended to the Society that the 17th By-law be repealed. Also that the last clause in the 35th By-law, beginning with the words, "or at least," be repealed. Also that the third section of the 38th By-law, beginning with the words "In every case," be repealed.

JACOB BIGELOW,
JOHN WARE,
Z. B. ADAMS.

Accepted.

A substitute being thought necessary for a part of the 17th By-law, a committee was appointed, to report one forthwith, consisting of Drs. Peirson, Jeffries, and Lewis.

This committee recommend to the Society that their fifteenth order be amended, by striking out all after the words "recording secretary," and adding the following, "by publishing the same in three newspapers, in three different counties within this Commonwealth."

A. L. PEIRSON,
For the Committee.

Dr. Hale, from the Committee on Publications, stated that the committee had met with some difficulty in fixing upon a book for the next volume of the Library of Practical Medicine. They were desirous of obtaining a very valuable work, which, from its size and expensiveness, would exceed the amount appropriated to a single year; but which might, if the Counsellors thought proper, be published in two volumes. The committee had therefore instructed him to offer the following resolution.

Voted, That the Committee on Publications be authorized, if in their judgment, the interests of the Society shall render it expedient, in connection with a volume of the Library of Practical Medicine for distribution at the next annual meeting, to contract for a further volume for the following year, provided the expense for each year shall not exceed $600.

While under consideration, the following resolve was offered by Dr. Walker.

That the Committee on Publications be hereafter selected in successive years, from such of the counties, in succession, of this Commonwealth, the Fellows in which, or through their Counsellors, may not signify their desire to be excused from that service.

This resolve conflicting with that of Dr. Hale, the former was laid on the table while Dr. Walker's proposition was under discussion. The vote on Dr. Walker's resolve was decided in the affirmative, and referred to the Society.

Dr. Hale's resolve, from the Committee on Publications, being again called up, was not accepted.

A resolution offered by Dr. Walker, after being amended as follows.

Voted, That a committee be selected to examine the code of By-laws of this Society, and to compare them with the laws of the Commonwealth and the charter of the corporation,

with a view to ascertain if there be any, and if any, which of said By-laws, which may either infringe the just rights of any portion or Fellow of the Society, be repugnant to the laws of the Commonwealth, or contravene the provisions of their charter, was accepted, and Drs. Walker, Peirson, and Adams of Waltham, were chosen a committee to report at an adjourned meeting.

Drs. Putnam and Hooker were appointed a committee to examine the Treasurer's accounts.

Drs. Flint and Morrill were appointed a committee to examine the Library and Cabinet.

Voted, That this meeting be adjourned to the first Wednesday of May next.

SAMUEL MORRILL, *Recording Secretary.*

ADJOURNED MEETING.

An adjourned meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont St., Wednesday, May 3d, 1843, at 11 o'clock A. M.

The records of the last meeting were read.

The committee appointed to examine the By-laws, on being called on for their report, stated that they had a meeting at the house of their chairman, Dr. Walker, and had a full and free discussion on various sections of the By-laws, which might be supposed to conflict with the charter, or the laws of the Commonwealth, but were unable to arrive at the same conclusion.

The majority of the committee, Drs. Peirson and Adams, made a verbal report, and during its discussion, a minority report was offered by Dr. Walker, which was fully discussed, but was not adopted.

The report of Drs. Peirson and Adams, stating they had attended to the duties assigned them, and begging leave to report progress and to be discharged from the further consideration of the subject, was accepted.

Drs. Townsend, Morrill, and Lewis, were appointed a committee to attend to the proper apportionment of Counsellors.

Voted, To dissolve the meeting.

SAMUEL MORRILL, *Recording Secretary.*

JUNE MEETING.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont St., on Thursday, June 1st, 1843, at 10 A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who have become Fellows of the Society, since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Metcalf, of Mendon, and Hayden and Thomas, of Boston, were appointed Scrutineers.

The following gentlemen were elected to the several offices.

JACOB BIGELOW, *President;* ROBERT THAXTER, *Vice President;* SAMUEL MORRILL, *Corresponding Secretary;* D. HUMPHREYS STORER, *Recording Secretary;* WOODBRIDGE STRONG, *Treasurer;* CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the first Medical District, and the Society at large,* Drs. Z. B. Adams, John Jeffries, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

Second Medical District, Drs. Benjamin F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, Joseph Sargent.

Third Medical District, Drs. David Bemis, Gardiner Dorrance, E. E. Denniston, Addison S. Peck, Watson Loud.

Fourth Medical District, Drs. Henry H. Childs, R. Fowler, A. G. Welsh, R. Worthington, N. S. Babbit.

A communication was read from the Southern District Medical Society, requesting that a Board of Censors might be appointed by the Counsellors for that District—Whereupon it was

Voted, That a fifth Medical District be formed, of the Counties of Bristol, Plymouth, and Dukes, for the choice of Censors; that the Censors' meeting be held at New Bedford, on the second Wednesday in May.

Voted, That the chairman of the Censors now elected, be authorized to call a meeting of the Censors, at any time he may think proper, for organization.

The following gentlemen were elected Censors for this District.

Fifth Medical District, Drs. Alexander Read, Andrew Mackie, Samuel Sawyer, Amory Glazier, Joseph Haskell.

Drs. Hale, Homans, and Storer, were chosen Committee on Publications.

Drs. Strong, Lewis, and Otis, were chosen Committee on Resignations.

Dr. John Ware, of Boston, was chosen to deliver the address at the next annual meeting of the Society.

The report of the Censors for the first Medical District and for the Society at large, was read and referred to the Secretary of the said Board of Censors for revision, with the request that it be again presented at the next meeting of the Counsellors.

The Treasurer's report on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted.

Voted, That the thanks of the Society be presented to Dr. Townsend, their late Corresponding Secretary, for the able and faithful manner in which he has discharged the duties of his office.

Voted, That the thanks of the Society be presented to Dr. Lewis, their late Librarian, for his faithful services.

Voted, That the twelfth and thirteenth volumes of the Library of Practical Medicine be furnished, by the Librarian, to the new members, for 75 cts. each.

Voted, That the Committee on Publications be authorized to select and publish a fourteenth volume of the Library of Practical Medicine, to be issued at the next annual meeting; one copy to each District Medical Society's Library, one copy to each retired member, and one copy to each Fellow of the Society who shall have paid his assessments to that time; and that the President of the Society be authorized to order the payment of not exceeding one half of the cost of said volume, before its full completion, in case it shall, in his judgment and in the judgment of the Committee, seem expedient to do so, *provided*, that the whole expense shall not exceed one thousand dollars.

Voted, That the Treasurer, with the concurrence of the President, shall, for the ensuing year, have the power to settle all accounts with delinquent Fellows whose debts are of more than four years standing, in any way deemed advisable by them.

Voted, That the Counsellors recommend to the Society to amend the By-laws, at the next annual meeting, by inserting the following words as the seventeenth By-law.

XVII. It shall be the duty of the Counsellors to act upon all matters referred to them by the Society, and in every case to report thereon to the Society at the next annual meeting. No "rule and order" of the Counsellors shall be in force until it shall have been sanctioned by a vote of the Society.

Drs. Fisher, Cogswell, and Ware, were appointed a Committee to consider and report upon the plan, proposed by Dr. Fisher (of the Society's "engaging in a series of statistical and other investigations"), at the next annual meeting.

Voted, That Drs. Strong, Hale, and Storer be a Committee to examine the Charter and By-laws of the Society, and inquire what are the relations to the Society of those Fellows, who, after having removed from the State, have returned and resumed practice therein.

The following gentlemen have been allowed to resign their fellowship:

John Walton, Pepperell, 1842; John Bartlett, Roxbury, 1842; Benjamin Skelton, Lowell, 1843; and being more than sixty years of age, they have become retired members.

Lewis S. Hopkins, Northampton, has also been permitted to resign fellowship, having relinquished practice.

Sir Benjamin C. Brodie, London, and J. Rhea Barton, Philadelphia, have been elected Honorary Members, both in 1842.

The following gentlemen have become Fellows of the Society:

By election. In 1842, A. Sumner Haskell, Deerfield; Milton Fuller, Medford; Joseph H. Hatch, Attleborough. George Wright, Montague, has also been elected, 1843, but has not yet signified acceptance of fellowship.

By signing By-laws in course. In 1842, Washington Shaw, Williamsburg; George Heaton, Boston; Rufus L. Hinckley, East-Boston; Amasa D. Bacon, Gloucester; Avery Williams, Lanesboro'; John B. King, Nantucket; William P. Dexter, Boston; Isaac Porter, Charlton; John H. Coggeshall, Marblehead; John Butterfield, Lowell; William P. Bonney, Fall River; William P. Morland, Boston; Peter S. Arnott, Pittsfield.

In 1843, William E. Coale, Boston; Joseph Hobbins, Brookline; G. Ware Gay, Boston; Richard U. Piper, Bos-

ton; Thomas Sparhawk, Dorchester; Hervey B. Wilbur, Lowell; George Hayward, Jr., Boston; Fitz-Edward Oliver, Boston; Joseph J. Jones, Boston; Horatio G. Morse, Roxbury; George N. Thomson, Boston; Elisha G. Tucker, Boston; Willard W. Codman, Boston; John George Rosenstein, Boston; Peter Renton, Boston; Edwin P. Grosvenor, Gloucester; Lucius H. Grosvenor, Reading; Israel H. Taylor, Pelham; S. D. Brooks, Norwich; Seth Fisk, Amherst; Henry S. Lee, Boston; Patrick Kearney, Boston; Ira Sampson, Dighton; Frederick Howard, Braintree; Wm. Auguste Frank, Boston; William Read, Lynn; Charles H. Allen, Cambridgeport; Edward Hall, Boston; Cyrus S. Mann, Boston; Johnson Gardner, Seekonk; Aurelius L. Weymouth, Salem; Samuel Cabot, Jr., Boston; S. A. Stanley, Bellingham.

Officers of the Massachusetts Medical Society.

ELECTED JUNE 1, 1843.

JACOB BIGELOW, *President.*

ROBERT THAXTER, *Vice President.*
SAMUEL MORRILL, *Corresponding Secretary.*
D. HUMPHREYS STORER, *Recording Secretary.*
WOODBRIDGE STRONG, *Treasurer.*
CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the Society at large, and the first Medical District,* Z. B. Adams, J. Jeffries, A. Hooker, W. Lewis, G. W. Otis.

For the second District, B. F. Heywood, C. W. Wilder, Wm. Workman, B. Pond, J. Sargent.

For the third District, D. Bemis, G. Dorrance, E. E. Denniston, A. S. Peck, W. Loud.

For the fourth District, H. H. Childs, R. Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

For the fifth District, A. Read, A. Mackie, S. Sawyer, A. Glazier, J. Haskell.

Committee on Publications, E. Hale, J. Homans, D. H. Storer.

Committee on Resignations, W. Strong, W. Lewis, Jr., G. W. Otis, Jr.

John Ware, M. D., of Boston, is appointed to read the next annual discourse.

Officers of District Medical Societies.

Essex Southern District Society. Andrew Nichols, *President.* Abel L. Peirson, *Vice President.* George Choate, *Treasurer.* William P. Richardson, *Librarian.* William Mack, *Secretary.*

Worcester District Society. No return.

Berkshire District Society. No return.

Hampshire District Society. Gardiner Dorrance, *President.* Atherton Clark, *Vice President.* Edward G. Ufford, *Secretary.* Chauncey A. Hall, *Treasurer.* Daniel Thompson, *Librarian.*

Southern District Society. Paul Spooner, *President.* John Perkin, and Jason H. Archer, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. No return.

Hampden District Society. David Bemis, *President.* James M. Smith, *Treasurer.* William A. Davis, *Secretary* and *Librarian.*

Essex North District Society. Rufus Longley, *President.* John Atkinson, *Vice President.* Isaac G. Braman, *Secretary.* Isaac Boyd, *Treasurer.* Jeremiah Spofford, *Librarian.*

APPENDIX.

1844.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held Wednesday, May 29th, at the Masonic Temple, Tremont street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

The following report of the Committee, appointed at the last meeting of the Counsellors, to attend to the proper apportionment of Counsellors, was read and accepted:

The Essex Southern District Medical Society contains 58 members, which, divided by 8, gives 7 2-8 — 7 Counsellors.

Essex North District Medical Society, 23 members — 2 7-8 — 3 Counsellors.

Worcester District Medical Society, 79 members — 9 7-8 — 10 Counsellors.

Berkshire District Medical Society, 34 members — 4 2-8 — 4 Counsellors.

Hampshire District Medical Society, 29 members — 3 5-8 — 4 Counsellors.

Southern District Medical Society, 35 members — 4 3-8 — 4 Counsellors.

Barnstable District Medical Society, 22 members — 2 6-8 — 3 Counsellors.

Hampden District Medical Society, 30 members — 3 6-8 — 4 Counsellors.

Bristol County contains 13 Fellows, unconnected with the District Society — 1 5-8 — 2 Counsellors.

Franklin County, 20 Fellows — 2 4-8 — 3 Counsellors.

Nantucket County, 4 Fellows — 1 Counsellor.

Plymouth County contains 24 Fellows, unconnected with the Southern District Medical Society — 3 Counsellors.

Middlesex County, 115 — 14 3-4 — 14 Counsellors.

Norfolk County, 48 Fellows — 6 Counsellors.

Suffolk County, 185 Fellows — 23 Counsellors.

Whole number of Fellows, 709.

All which is respectfully submitted, by

S. D. TOWNSEND,
S. MORRILL,
WINSLOW LEWIS,
} *Committee.*

Letters were then read from the Secretaries of the Essex South, Essex North, Hampden, Southern, and Barnstable District Medical Societies, stating the organization of the several Societies, for the year 1844, — and nominating to the Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Willard, of Uxbridge, Buck, of Boston, Howe, of Billerica, Bell, of Somerville, and Cogswell, of Bradford, were appointed Scrutineers.

The Scrutineers reported the following gentlemen as having been elected Counsellors:

Essex Southern District Society. Drs. Andrew Nichols, Abel L. Pierson, Ebenezer Hunt, George Choate, Joseph Reynolds, Samuel Johnson, Wm. Prescott, George Osborn.

Worcester District Society. Drs. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, John G. Metcalf, Pearson T. Kendall, Joseph Stone, William Workman, D. S. C. H. Smith.

Berkshire District Society. Drs. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, Hervey Orcutt, Edward G. Ufford, Edward G. Denniston.

Southern District Society. Drs. Paul Spooner, Alexander Read, Amory Glazier, Leroy M. Yale, John Perkins.

Barnstable District Society. Drs. Benjamin F. Seabury, John Harpur, Elijah W. Carpenter.

Hampden District Society. Drs. William Bridgman, David Bemis, Jehiel Abbott, James M. Smith.

Essex North District Society. Drs. George Cogswell, John Atkinson, Martin Root.

Franklin County. Drs. Alpheus F. Stone, Stephen W. Williams, Christopher Deane.

Middlesex County. Drs. Timothy Wellington, Zadok Howe, John C. Dalton, Josiah Bartlett, Anson Hooker, John O. Green, Nehemiah Cutter, J. S. Hurd, C. F. Chaplin,

Simon Whitney, Horatio Adams, Hiram Hosmer, Luther V. Bell, J. M. Whittemore.

Norfolk County. Drs. Nathaniel Miller, Robert Thaxter, Jeremy Stimpson, Ebenezer Alden, Ebenezer Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County — (not included in District Society). — Drs. Ezekiel Thaxter, Paul L. Nichols, Winslow Warren.

Bristol County — (not included in District Society). Drs. Caleb Swan, Alfred Wood.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, John D. Fisher, Charles G. Putnam, James B. S. Jackson, Alexander Thomas, Ephraim Buck, A. A. Gould.

The report of the Committee appointed at the last meeting of the Counsellors, to examine the Library and Cabinet, was read and accepted.

The Treasurer's annual report was read and accepted; from which it appeared that the amount received into the Treasury during the year, ending May 28th, 1844,

was, - - - - - - - - -	$1,777 47
The amount of expenses, - - -	1,762 11
Leaving a balance of - - - -	$15 36

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $8,357 58.

The following report of the Auditing Committee was then read and accepted:

MASSACHUSETTS MEDICAL SOCIETY.

The Committee appointed to examine the Treasurer's accounts, have attended to the duty assigned to them, and respectfully report:

That the amount received into the Treasury, during the year, ending May 28, 1844, is - - - -		$1,777 47
From the following sources, viz.:		
Balance of last account, May 31, 1843, - - - -	$ 95 98	
Received at the annual meeting, 1843, - - - -	839 83	
Collected since, by the Treasurer and his collectors, - - -	457 08	
Collected and transmitted by the Treasurers of District Societies,	382 33	
Received from Librarian, for books sold to Fellows, - - -	2 25	
		$1,777 47

It thus appears that the sum of $1,679 24 has been paid by Fellows of the Society, during the year, viz.:

On old assessments, due prior to 1843, as nearly as the Committee can ascertain, - - -	$ 288 24	
For assessments due at the annual meeting, 1843, - - -	1,223 00	
For assessments, in advance, for 1844, - - - - -	168 00	
		$1,679 24

The expenditures have been as follows:

For rent,		$ 125 00
For the annual dinner, 1843,		376 25
For printing the annual Discourse and Proceedings,		108 25
For the Library of Practical Medicine, Vol. XIV,		1,035 00
For printing and distributing Address of Committee on Statistics,		31 89
For advertising,		35 97
For other contingencies,		49 75
		$1,762 11
Leaving a balance due from the Treasurer, of		$15 36

The Committee are of opinion that the sum expended for advertising is too large. They are aware that the acts of incorporation require the publication of a considerable number of advertisements; but they believe that all the advertising that the law demands, or that will be useful, may be effected, with a material saving of expense, by a careful attention to the number of insertions. The expenses of collecting the assessments are not included in the above statement of expenditures, but are deducted from the payments of Fellows, before the amount is credited in the Treasurer's accounts.

The Committee have also attended to the other duty referred to them, and have, as far as they were able, examined the accounts of the Fellows. From this examination it appears, that of the 709 Fellows belonging to the Society, May 31, 1843,—458 have paid the assessment for the year, amounting to - - $1,374 00

33 have paid (besides payments on notes, previously given), on account of old assessments, - -	203 00	
56 have paid in advance, for 1844,	168 00	
		$1,745 00

There stands charged on the Treasurer's book, as due, prior to the assessment of 1844, from 224 Fellows, the sum of $2580. A large proportion of this amount purports to be due from a small number, in large sums. There are 37 Fellows who owe, each, six or more assessments, amounting together, to $1372, — 53 who owe two or three, each, and 84 who owe, each, but one. Most of those who appear to be delinquent in the smaller sums, are probably so from inattention, and will, doubtless, pay when called upon. The Committee are of opinion that more effectual measures ought to be devised to effect the settlement of the larger accounts, and to prevent their accumulation in future. It has always been, and, the Committee trust, it always will be, the practice of the Society to treat with great indulgence every member who has become unable to pay his annual dues. But so much ought, surely, to be expected from each individual, as that he should attend to his account before the amount becomes so large as to exceed his ability, or, at least, if unable to pay, to ask from the Counsellors the indulgence, which they have been sufficiently ready to grant, whenever it was truly required.

The returns of the Treasurers of the several District Societies exhibit the following results:

SOCIETIES.	No. of members as reported to the Soc., May 31, 1843.	No. who paid assessment of 1843.	Amount for 1843.	Number of members delinquent.	Amount due.
Essex Southern District, - - -	55	31	$ 93 00	18	$150 00
Worcester, " - - -	83	35	105 00	43	359 00
Berkshire, " - - -	34	6	18 00	23	137 00
Hampshire, " - - -	31	11	33 00	15	72 00
Southern, " - - -	34	31	93 00	3	39 00
Barnstable, " - - -	21	15	45 00	3	12 00
Hampden, " - - -	29	9	27 00	19	294 00
Essex North, " - - -	25	12	36 00	15	84 00

The Committee cannot but express their satisfaction at the returns from the Barnstable and the Southern District Societies. They both were made in good time, before the end of the year 1843; and each returns only three delinquent members. Those in Barnstable, and two of those in the Southern District, appear to have been delinquent only from accident, and for very small amounts; and the other has met with reverses, which, together with his advanced age, present a strong claim to the indulgent consideration of the Counsellors. How much, both of trouble and of discontent, would be saved, if all the Fellows of the Society were as punctual, and all its officers as efficient, as those of these two Districts have been, the past year.

The Committee have also examined the certificates of deposit in the office of the Massachusetts Hospital Life Insurance Company, and find that the amount of the Permanent Fund, with interest to Jan. 1, 1844, is eight thousand, three hundred and fifty-seven dollars and fifty-eight cents.

All which is respectfully submitted,

ENOCH HALE,
EPHRAIM BUCK, } *Committee.*

Voted, That the By-Laws be amended, by inserting the following words as the 17th By-Law:

"XVII. It shall be the duty of the Counsellors to act upon all matters referred to them by the Society, and in every case to report thereon to the Society at the next annual meeting. No 'rule and order' of the Counsellors shall be in force until it shall have been sanctioned by a vote of the Society."

The Committee appointed at the last meeting of the Counsellors, to bring the subject of engaging in a series of statistical investigations before the Society, and of devising plans

and means to carry the matter into execution, presented the following report, which was accepted:

To the President of the Massachusetts Medical Society,—

Sir: The Committee appointed, in February last, to lay before the Society the subject of an investigation into the Vital Statistics of this State, beg leave to REPORT:

That, in pursuance of their object, they addressed the enclosed Circular to all the members of the Society. In addition to this, they addressed a number of private letters to different medical gentlemen, residing in various parts of the Commonwealth, known for their devotion to the cause of science, and favorably situated for the observation of the health of certain well-marked portions of our community. These letters, which were intended to embrace in their range a representation of the agricultural, manufacturing and sea-board population, have been received with cordial attention, and called forth a number of valuable answers.

It results, from the examination of these papers, that there exist remarkable differences in the length of life, and in the prevalence of certain diseases, in the various localities and classes of population which have been examined.

At the same time, the few returns received have been useful, rather in demonstrating the very great interest and importance which would attach to an extended investigation of these facts, than by affording any considerable number of definite conclusions. Their limited number hardly allowed any anticipations of such broad results.

In view of these objects, and encouraged by the reception their labors have met with in this preliminary stage, the Committee would urge upon the Society the duty of a general and hearty co-operation of each individual member in the task of accumulating those primary facts which are within

the reach of all observers. Unimportant as they may seem, when isolated from each other, they involve the most momentous truths, which rise spontaneously, as it were, to their surface when they are united in considerable masses.

Respectfully,

JOHN D. FISHER,
EDWARD JARVIS,
O. W. HOLMES,
} *Committee.*

ADDRESS TO THE MEMBERS OF THE MASSACHUSETTS MEDICAL SOCIETY.

At the annual meeting of the Society, on the 31st of May, 1843, a resolution, relative to the registration of diseases and their co-existing circumstances and results, was adopted, and the whole subject of consideration and action referred to the Counsellors.

At the meeting of the Counsellors, on the 1st of June following, they appointed a committee, consisting of Drs. John D. Fisher, of Boston, George Cogswell, of Bradford, and John Ware, of Boston, "to consider and report upon the plan proposed by Dr. Fisher, (of the Society's engaging in a series of statistical and other investigations,) at the next annual meeting."

At the February meeting of the Counsellors, the Committee made the following Report:

To the Counsellors of the Massachusetts Medical Society,—

GENTLEMEN:

The Committee appointed by you in June, 1843, to consider the resolve adopted by the Society at its last annual meeting and referred to the Counsellors, in the following words, "that the Counsellors be requested to consider whether this Society may not effectively engage in a series of sta-

tistical and other investigations, which would be advantageous to Medical Science and Public Hygiène," have considered the subject, and ask leave to offer the following

REPORT:

The Massachusetts Medical Society was organized, and entered upon its labors, in 1781. In accepting its charter, it acknowledged "that health is essentially necessary to the happiness of society," and at the same time assumed an obligation to promote it, in its associate capacity, by all the means in its power.

Has this obligation been fully redeemed? Your Committee feel an honest pride in contemplating the results, which the Society has accomplished. It has elevated the standard of medical education, promoted the progress of medical science, and been the means of providing the people of the State with a class of intelligent and accomplished medical advisers, worthy of their highest regards, and into whose hands they may safely entrust their lives, when in peril from disease.

A part, then, of the object of its organization, has been accomplished by the Society; but, in the opinion of your Committee, its whole obligation has not yet been cancelled. In their collective and in their individual capacity, the members of the Society have devoted their powers mainly to the study of the nature and cure of diseases; while to the investigation of the agents which produce disease, or, in other words, the study of their prevention, they have not, at least in their associated capacity, done any thing worthy of the importance of the subject, or of the profession.

It was to direct the attention of the Society to this great object, that the resolution under consideration was submitted to it at its last meeting. In the whole range of medical inquiry, there is no one, which, in the opinion of your Com-

mittee, equals it in importance, and no one, in the investiga tion of which, the Society can engage with equal facility, or with the prospect of so much advantage to medical science, and to the welfare of the community. The subject is a vast one. It comprises a consideration of all the agents, moral, material and social, which affect the vitality of our organization. But it is one which the members of the Society can do much to exhaust, and the extent of the undertaking should rather prove a spur to their ambition, than its difficulty be allowed to deter them from its investigation.

In regard to the pathology and treatment of disease, neither the physicians of this State, nor country, can expect, for the want of extensive fields of observation, to rival their European brethren. But there is a vast field, as yet comparatively unexplored by the latter, and for the examination of which the American physician is peculiarly qualified,—the causes of disease. In a country of such recent exploration, and especially to us whose State is so regularly divided, it would be an easy matter, in our associated capacity, to accomplish a most important work in this respect, not merely for ourselves, but for future generations, the influence of which will be felt in the increase of the health of the public. The question then resolves itself into this,—are we willing to direct our investigations to the causes of disease, and, by so doing, remove the obstacles to health, and prolong the life of the individual?

In order to approximate the causes of disease, and to ascertain the value of human life, it will be necessary to investigate all those circumstances which can have any influence in the production of disease, in the impairing or shortening of life, as well as to examine the quantity, character and issue of disease, the season of the year, and the period of life at which it may occur.

For these general purposes it will be necessary to learn specifically the physical character, and the topography of every district and town; its elevation, soil, relation to running, quiet or stagnant waters; to ponds, rivers, or the sea; to swamps, low meadows, or forests; its exposure to winds, or its protection from them.

It is also important to know the density of the population, in order to determine how far this has any effect in the production, continuance, or fatality of disease; whether cities, villages, or sparse districts are more favorable to health. In order to compare the amount or proportion of sickness in one place or occupation with that in another, the absolute sum of population resident in any district, or engaged in any trade or profession, among which a definite quantity of disease may be found, must be correctly ascertained.

It is commonly supposed that those residing in cities are less disposed to certain diseases, and more so to others, than those living in the country; also, that the various occupations exert an influence equally distinct in its character upon the different forms of disease. But we want sufficiently minute and extensive data to determine these questions satisfactorily.

Health is affected by the character and habits of the people; how far, and in what manner these exert an influence, yet remains to be determined. The habits of each patient must, therefore, be inquired into, — whether he be temperate or intemperate; laborious or sedentary; active or inactive; comfortably clad, housed and nourished, or in a state of suffering and want.

The domestic and social condition of the family must also be known; the means it possesses of sustaining life; the intelligence and education of the adult patients, or of those who have the direction of the children.

Having first determined these facts and circumstances, it is next desirable to ascertain the quantity of disease, the specific

disorders, their duration and termination in recovery or death; and also how many are valetudinarians, who are leading an imperfect life.

These investigations will show us how much life there ought to be, how that life is distributed, and how much it is impaired and curtailed. We shall then be able to compare the desired with the actual duration and quantity of life. We shall also learn through the lesions of what organs, or through the derangement or failure of what functions, life is diminished or extinguished; and lastly, amid what circumstances these disorders and deaths happen. Thus shall we be led toward the causes of disease and mortality.

We have ceased to believe that diseases come from any mysterious cause, from a capricious Providence, or the general judgments of Heaven, and acknowledge that they have their origin in the influence of the elements, in our constitutions and habits, in the use we make of our organs and functions.

We have no philosophy to determine, *a priori*, the effect of these various circumstances and materials upon health and longevity; we must, therefore, compare men and their ailments in one set of circumstances with them in another; and if, from wide fields of observation, we find a permanent difference between them, we may suppose there must be in or about those differing circumstances a variation of causes adequate to account for the differences of ailment. If, for example, in the districts near the sea-coast we find more consumption and other pulmonary disorder, in proportion to the population, than in the country west of the highlands in Worcester county, where the east winds do not prevail, we may infer that these winds, or other causes connected with the vicinity of the ocean, may have had some influence in the production of disease in the lungs.

The surface of Massachusetts is much diversified; some of it is low and borders upon wide meadows, which are mostly wet; some of it is elevated several hundred feet above the

level of the ocean. The valley of the Concord river, from its source to its mouth, is low and flat; the stream is sluggish, with so little fall that its freshets run off very slowly. It is skirted by extensive wet meadows through Framingham, Wayland, Sudbury, Concord, Carlisle, Bedford and Billerica, which it overflows always in the spring, and often in the summer and autumn, and on slowly falling, it leaves a large surface of wet soil, from which watery vapor and the emanations of decayed vegetation must be continually rising. The neighboring lands are not much raised above these meadows, and are covered with a great population. The fogs from these low grounds and the river reach all the vicinity, and create a marked difference in the temperature of the atmosphere. It is desirable to ascertain whether there are more pulmonary diseases, fevers, or rheumatisms among the inhabitants of this valley, exposed to these fogs and miasmata, than among those occupying the higher grounds of the north and centre of Worcester county.

Our knowledge with regard to the influence of trades upon health, rests almost entirely upon conjecture. The second Report to the Legislature of Massachusetts upon Births, Deaths and Marriages, states, that the average life of thirty-five blacksmiths, who died during the last year, was fifty-nine years; that of ninety-nine carpenters and one hundred and eighteen shoemakers, each forty-eight years; while seven hundred and three farmers enjoyed a life of sixty-five years. The duration of life in carpenters, who work abroad and have active exercise, when compared with that of shoemakers, who sit and live in close rooms, certainly differs from our common notion of the effect of those trades upon health, and a more extensive observation may show that the popular opinion is correct. It may be that the difference of mortality of men in various pursuits is not so much owing to their occupation as to their domestic condition.

There is reason to believe that there is a great difference in the value of life in the different conditions of society.

The Report of the Poor Law Commissioners upon the sanitary condition of the laboring classes of England and Wales, shows, that while the families of gentlemen, merchants and professional men, average a life, in different places, of from 35 to 50 years; laborers, operatives, mechanics, servants, and others similarly situated, also their wives and children, average a life of only 15 to 35 years, in various places. This difference of the value of life is not confined to England and Wales. We have obtained an analysis of the ages, and also of the domestic and social condition of 1767 persons, who have died in Dorchester within the last 27 years. By this it appears that the average duration of life in the families (including father, mother and children) of laborers, fishermen, journeymen mechanics and factory operatives,

was - - - - - - - - 27 yrs. 5 mos.
Mechanics who carry on business on their own account, - - - - - - 29 " 6 "
Merchants, capitalists, professional and salary men, amateur farmers, - - - 33 " 2 "
Farmers who own and cultivate their lands, 45 " 8 "

This difference is not chargeable to the occupations merely, for it was found the most among the little children at their homes, as will be seen in the following table.

PERIODS OF LIFE AT WHICH DEATH TOOK PLACE.	NUMBER OF PERSONS DYING IN THE FAMILIES OF				
	Laborers, &c.	Mechanics	Merchants, &c.	Farmers.	Total.
Under 2 years, - -	161	115	127	33	436
" 5 " - -	203	148	172	50	573
" 20 " - -	244	191	235	63	733
" 70 " - -	462	351	499	191	1503
Over 70 " - -	51	50	90	73	264

PROPORTION OF DEATHS AT EACH PERIOD TO ONE THOUSAND IN EACH CLASS.

PERIODS.	Laborers, &c.	Mechanics	Merchants, &c	Farmers	Total.
Under 2 years, - -	313	286	215	124	246
" 5 " - -	395	368	292	188	324
" 20 " - -	474	476	398	237	410
" 70 " - -	901	875	847	735	850
Over 70 " - -	99	124	152	274	149

This great difference of mortality between the children of the poor and of the comfortable farmer, cannot be caused by the employment of the head of the family. There must be a cause or causes connected with the domestic condition or management, to produce this discrepancy. But it is yet a question to be resolved by farther and wider observation, whether this, although a general fact in England and Wales, is here more than a particular fact in regard to Dorchester. A similar analysis must, therefore, be obtained of the mortality of many towns, in all parts of the State, in order to determine whether life is meted out in such various proportions to the different classes of society throughout the Commonwealth.

A decided influence is exerted upon the health and life by the moral character; yet there are no data to determine how much, or in what way this operates. The opponents of intemperance talk vaguely and largely of the effects of this vicious indulgence upon the health; but they differ widely from each other, because they have no well-digested system of facts to build their theories upon. We have but one observation, and that a limited one, taken by a physician in the course of two years, over about six hundred people in a country town of this State. They were persons whose habits were known to him, and during the period of his observations they were under his sole professional care. He kept a careful record of all their attacks and of the duration of their diseases, and compared the number of days the intemperate were sick with those of the abstemious. He ascertained that the former were sick and required his attendance fourteen per cent. each, on an average, more than the latter; i. e., while the temperate were sick 100 days, the same number of the intemperate were sick 114 days. This is a valuable observation, so far as it goes; it shows that the alcoholic temperament or habit probably caused all the excess of disease of one class over the other. But some very important facts were not observed, on account of the limited field of

observation. The differences of fatality of similar diseases in these two classes, and of the average duration of life, may be and probably are greater than that of the quantity of actual disease; but a still greater difference, it is believed, would be revealed in the infirmities, in the broken constitution and impaired lives of the intemperate.

The value of education, of intellectual culture, as a protector of health, is conjectured, but not determined. In the instances already quoted, of the greater mortality among the poor in England and Dorchester, it may be that their want of education, of a knowledge of all the circumstances affecting their lives, of a quickened intellect, that readily perceives danger, and finds means to avoid it; that sees remote consequences, and therefore in self-management and in family government lays no foundation of disease, — it may be that the want of this information is to them as much the cause of disease and death as their want of the comforts of living. By the report of the deaths of England, in 1841, it appears that the mortality among children, under one year old, ranged from about seventeen per cent. of all that died in some of the most intelligent agricultural counties of Devonshire, Dorset, Cumberland, Westmoreland, and parts of Lancaster and Northumberland, to twenty-nine per cent. in the mining parts of Staffordshire, where the greatest general ignorance prevails. If this analysis had gone minutely into families, as we can carry it here in Massachusetts, instead of including all, the learned and the ignorant, the rich and the poor families of one district in one class, it would have shown a more terrible difference of mortality among the infants in the different walks of life.

These reports of deaths, which your Committee propose to have made by each member, will show only one portion, and that, perhaps, the worst portion, of the effects of locality, occupations, habits and circumstances on human vitality.

There is yet another tax upon life, in the whole sum and detail of curable disease. This may originate in similar

causes to that which is more destructive; it remains, therefore, to determine the amount of this, its characters, location, seasons and attendant circumstances, in order to ascertain the extent of the attenuation, as well as the shortening of life.

It is admitted that some diseases prevail more in some localities than in others; but this is rather a matter of general opinion than of positive demonstration. We know that some persons predisposed to asthma, suffer from the development of that disease, while they reside near the sea-coast, but are entirely free from all its symptoms, while they reside in the valley of the Connecticut river, buried deep in the mountains. Is this a general law as to these two localities, or is it merely confined to the instances which happened to come within our knowledge? Is asthma as frequent in the Connecticut valley as it is on the coast? The returns of deaths to the Secretary of State, for the last two years, give fifteen cases of this disorder, of which one was in Worcester county; all the others were in the eastern counties; none were west of the highlands.

Typhoid fever has prevailed very extensively and epidemically in the low grounds of Concord for the last five months, from September to January: it was there mild in its course and safe in its issue. It also prevailed in the high lands of Sunderland and Montague twelve years ago: it was there severe and frequently fatal. As these epidemics were nearly similar in their attack and progress, it is desirable to know if there were a similar cause, independent of the situations, which differed widely from each other. These epidemics have not appeared in these places in other years, as they did in the years herein specified; the cause or causes of this disease must, then, have been temporary, as well as local, and our investigations will be narrowed down to the places and the times, when and wherein these diseases have appeared. We desire to learn the circumstances which were peculiar to these times and places, as regards others, yet

were common and alike to them, among which will probably be found the predisposing or exciting causes of this epidemic.

If diseases have a local origin, we have, so far, a means of prevention; or, if too late for this, perhaps of cure, in the removal of the patient from the cause, or the cause from the patient. If they originate in any trades, occupations, habits, customs, indulgences, or exposures, the means of prevention are not less in our hands.

Knowing, then, the effects of localities, seasons, employments and customs, upon the human constitution, not only in its perfect state, but in every variety of defective organization, we have the means of removing from the world a large part, if not the most, of its ailments.

In point of philanthropy and general economy, it is always important to the public that this knowledge of the prevalence and extent of diseases should be gathered, concentrated and distributed to the people. But in some cases it becomes especially important in point of political economy. When, in the year 1829, the Legislature of Massachusetts proposed to establish the Lunatic Hospital, they were in want of data to determine the general ground of action. They wanted to know how many insane there were in the State; how many were dangerous; how many curable; how many would be benefited by hospital treatment. But no one could give them this information. A tale of woe had gone up from the prison-houses of the suffering lunatics, and had reached the ears of the legislators in the State House, imploring them for relief. When, at length, they determined to do something, they neither consulted the Massachusetts Medical Society as to the extent or degree of the suffering to be relieved, nor asked of physicians what course was the best to be pursued. For the Medical Society had not the knowledge to give; they had taken no observations of the prevalence of insanity, nor of the condition of the sufferers. The government, then,

instead of asking this body of scientific men, or sending to the physicians individually, sent their circulars to the overseers of the poor, to the civil authorities, who only recognize insanity as a matter to be fed, supported, or restrained. Upon the data thus obtained, they have made a permanent investment of nearly $150,000, and have an establishment at an annual cost of near $30,000.

The last census of the United States attempted to make some contributions to statistical nosology; but it contains statements in regard to the prevalence of insanity among the colored population of the free States so palpably and so grossly erroneous, that the most superficial observer would reject them. Yet these have been published and sent forth to the world, under the authority of the national government, and reprinted by our medical and political journals, and even again published abroad, as proofs of the liability of the colored man, in a state of freedom, to mental derangement. According to this calculation, every forty-third negro in Massachusetts, and every fourteenth negro in Maine, is a lunatic, and we have no data to refute the error. Fortunately, the document itself supplied the means of its own refutation, in regard to the lunacy of the negro; still, there may be errors equally certain, if not equally palpable, in regard to the insanity of the whites. The Medical Society can determine the truth of this matter, and whether the general opinion be correct, that we in the United States, and in New England especially, have positively a greater proportion of insanity than any other nation or country is supposed to have; and whether a high state of general education, an active and enterprising habit of a people, are prejudicial to mental soundness, more than the lethargy of the masses in Europe.

The members of this Medical Society have not only the duty of healing to perform, by which they obtain for themselves honor and profit, but they have the work of prevention,

also, by which they may do the greatest amount of good to their fellow-men. They owe it to the world and to medical science, to learn, as far as possible, the vital worth of every place, occupation and circumstance, as others learn their pecuniary value, and publish this abroad, so that men may avail themselves of the best means to obtain a fulness and a length of life.

They are happily situated for this undertaking. Implanted as they are in every district and corner of the State, — in towns of limited extent and well-defined by geographical boundaries, — and residing among an intelligent people, who are ever alive to whatever may interest their individual well-being; with whose condition, character and relations to circumstances affecting health they are familiar, the members of this Society have the means of ascertaining almost the whole amount, kind, and degree of disease, as well as the times, circumstances and causes of almost all the mortality within this Commonwealth. There is, then, a responsibility for the use of these means, and for accomplishing this good, resting upon this Society, which ought to be considered, and which cannot be thrown upon the people, nor upon the government.

For these reasons, and with these facilities, your Committee propose, that the Medical Society proceed at once to the investigation of the nosology and mortality of Massachusetts, and invite the co-operation of each one of its members to carry on the work.

Your Committee propose, that a series of tables and questions be printed, and sent to each one of its members, respecting the topography and meteorology of every place; the characters and condition of the people; the kinds, amounts, and issue of disease; the causes of mortality, and duration of life.

That a printed system of nosology be sent to each Fellow, and that all returns of disease be made corresponding to it.

That each Fellow not only give answers to the queries respecting the topography of his town and district in general

terms, but that he also describe the sanitary condition of the residence of the patient, the time he has lived in it, his habits, occupation, &c.

That each Fellow make annual returns of these observations, by mail, to such committee or officers as the Counsellors may appoint to receive them.

That this committee or officers digest all these returns into one system, and print the results in a tabular form, with such descriptions and annotations as may be suggested or supplied to them, and distribute the volume, when printed, to the Fellows of the Society.

All which is respectfully submitted.

JOHN D. FISHER, *Chairman.*

This report was read and accepted; and Dr. Fisher, of Boston, Dr. Jarvis, of Dorchester, and Dr. Holmes, of Boston, were appointed a Committee to lay the whole subject before the members of the Society, and to devise plans and means to carry the matter into execution.

In order to carry out the purposes of the Society, in this statistical investigation, it is desirable to secure the co-operation of every member.

It is proposed to obtain an accurate description of the topography, and of the physical and moral condition of the people of every place, in order to ascertain the endemic and other influences upon the health of the inhabitants.

It is also proposed that each physician should keep an exact record of each case, at least of the points which will be specified in the plan which accompanies this report. The date, name of patient, sex, color, place of birth, age, domestic condition, whether single, married or widowed, occupation, relation to occupation, site of residence, years of residence in that place, habits as to temperance, disease, duration of disease, termination, should be recorded and reported. As to the occupation, it is desirable to ascertain, not only the occupation of adult males, who may be sick, but also that of

the head of every family, in which there may be sickness of the wife or children. Under this head wives will be classed with their husbands; minor children who live with their parents will be classed with them; unmarried females, if they have any especial occupation, will be so designated; if not, and they live at service in other families, they will be designated as laborers. If not at service, nor in any especial occupation, and they retain the social position of their parents, they will be so designated. Thus the unmarried daughters of farmers, shoemakers, physicians, &c., while they live at home, or with friends, or are self-dependent, will be classed as farmers, shoemakers, physicians, &c.; but if at service, they will be classed with the laborers. Apprentices, clerks, students, will be classed according to their employment. Factory operatives will be classed as operatives; but it is desirable that the kind of factory, cotton, wool, nail, &c., and the especial occupation, as carder, spinner, &c., be stated.

It is desirable to know the relation of each person, or head of family, to his employment. Whether he be an under-worker, as a journeyman, or carry on his trade on his own account. Whether he be a farmer, managing his farm, or a laborer, working for another.

As to the site of the residence, having first obtained the topographical description of the town, it will be easy, first to refer the particular situation of each individual to this, and then state whether the site of the dwelling be dry or wet, low or elevated.

As to habits, it is desirable, in addition to temperance and intemperance, to know whether the individuals were inactive, industrious, or over-laborious.

It is desirable that the topographical descriptions should be full and perfect, at first, and when this shall be once given, it need not be repeated, unless changes take place in the physical character of the town.

The following questions occur to your Committee as proper, in all cases, to be answered; but it is requested that

the members of the Society would add such other information as may seem to them to throw any light on the endemic influences of the town, or lead to the causes of disease:

What is the size of your town or city, in square miles or acres?

What are the general features of its surface? Hills—their height and extent? Plains—their extent? The general elevation of the town above tide-waters?

Forests? waste and cultivated lands? their extent?

Number, size and direction of rivers and running streams? Are they rapid or sluggish? Have they falls? used for mills? Are they overflowed and drawn off alternately for mechanical or other purposes? Do they overflow their banks to any extent, and leave, on subsiding, upon the surface, a muddy deposit for exhalation and evaporation?

Are there ponds which are stagnant? and how large? Extent of low meadows and swamps? Are there sources of miasmata?

Are the residences of the people nearly on a level with these, or within reach of the fogs connected with them? or exhalations from them?

General character of the soil and the sub-soil?

Agricultural productions?

In regard to Meteorology, observations should be made in a register, on the following points:

1. The temperature of each day, as measured by uniform thermometers.

2. The varying pressure of the atmosphere, measured by uniform barometers.

3. The amount of rain that falls, measured by uniform rain-gages.

4. The number of fair—cloudy—stormy days.

5. The direction, &c., of the winds.

In regard to the civil and social condition of the citizens, the following circumstances should be referred to, viz.:

1. The amount of population of the town.

2. Their general character for intelligence—habits—morals—industrious—economical, and pecuniary condition.

3. The number of families employed in different occupations.
4. The insane—blind—deaf mutes.

In order to carry out the plan we have in view, and to render the knowledge of diseases and of the causes of death valuable to science, and available for the elucidation of hygiène, a uniform plan of designating each disease must be adopted.

"A uniform nomenclature is of as much importance in this department of inquiry, as weights and measures are in the physical sciences." The adoption of such an one must be a preliminary step by the Society, and its subsequent use by the members an essential requisite in their records and reports.

After devoting much attention to this subject, and examining the various plans of registration of diseases and causes of death, no one has appeared to the Committee so perfect and so well adapted to our purposes, as the one prepared by Dr. Farr, and used in England by the Registrar-General in his reports. It is simple and comprehensive.

The members of the Society are requested to use this in their records and their reports of diseases and deaths.

It is requested, that these returns should include the observations and experience of an entire year, commencing the first day of January, and ending the thirty-first day of December; except, however, the returns for 1844, which must include only the six months following the first day of July.

The returns should be made out according to the formula, which is included in this report, and include notices of all the topics therein specified, and such other observations or suggestions as may occur to any member of the Society. These should be sent, by mail or otherwise, in the months of January or February, to the Secretary of the Medical Society, who will deliver them to the Committee of Registration.

JOHN D. FISHER,
EDWARD JARVIS,
O. W. HOLMES,
} *Committee.*

Boston, March, 1844.

REGISTER OF DEATHS in the Town of County of and State of Massachusetts, for 1844.

Duration of Disease in hours, days or years.		
Disease, or cause of death.		
Habits.	Abstemious or Intemperate.	
Was he employed for wages, or did he work on his own account, or for a salary.		
Years of residence in that place.		
Site of residence, whether dry or moist; near stagnant water.		
Years engaged in occupation.		
Occupation, (do. of parent, if the deceased be a child.)		
Single, married or widowed.		
Place of Birth.		
Color.		
Sex.		
Age.		
Date of Death.		
NAME.		
Number.		

NOTE.—The name of the individual, also the sex,—condition, whether single, married or widowed; and habits, whether abstemious or intemperate, may be indicated by initials.

REGISTER OF DISEASES in the Town of or within the observations of the Subscriber.

Termination, recovery, death or unchanged.		
Duration of Disease.		
Disease.		
Habits.	Abstemious or Intemperate.	
Years of residence in that place.		
Site of residence dry or moist? near stagnant waters?		
Is the head of the family employed for wages, or does he work on his own account, or for a salary?		
Occupation of the head of the family.		
Single, married or widowed.		
Place of Birth.		
Age.		
Color.		
Sex.		
NAME.		
Number.		

The following resolutions were read by Dr. Bartlett, of Concord, and, after some discussion, were accepted:

"Whereas, great and glaring mistakes respecting the prevalence of insanity among the colored population exists in the late census of the United States, and the same has been republished in various ways, both in America and in Europe, and

"Whereas, it is the duty of all medical men, and especially of this Society, which in its 750 members, comprises the majority of the physicians, practising in this Commonwealth, to not only spread truth, but to guard against any errors in respect to the prevalence of disease in the community,—therefore,

"*Resolved*, This Society should protest against the errors of that census, in this respect, and should memorialize Congress, making a statement of the facts, as they are in this State, and asking that the errors should be corrected.

"*Resolved*, That the Counsellors be requested to take this into consideration, and to prepare such a memorial, to be presented to both houses of Congress during the present year."

At one o'clock the Annual Discourse was read by Dr. Homans, of Boston, on "The Character and Qualifications of the Good Physician."

On motion of Dr. Ware, it was

Voted, That the thanks of the Society be presented to Dr. Homans, for his comprehensive, interesting and valuable Discourse.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,

Recording Secretary.

The Fellows of the Society then proceeded to the hall over the Worcester Railroad Depot, opposite the U. S. Hotel, and dined together, to the number of 325.

Proceedings of the Counsellors.

OCTOBER MEETING, 1843.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont St., on Wednesday, October 4th, 1843, at 10 o'clock, A. M.

The records of the last meeting were read.

The Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since its last stated meeting.

On motion of Dr. Hale, Voted,—that any Fellow of the Society who shall pay his assessment in advance for 1844, shall be entitled to receive the volume of the Library of Practical Medicine for that year, whenever it is ready for circulation.

On motion of Dr. Cogswell, Voted,—that the publishing Committee be authorized to add a biographical notice, together with a portrait of Sir Astley Cooper to the volume now being published, provided the expense of the same shall not exceed thirty-five dollars.

The Committee appointed at the last meeting of the Counsellors to consider the "relations to the Society of those Fellows, who, after having removed from the State, return and resume practice therein," presented the following Report, which was accepted:

"It was the obvious design of the act of Incorporation of 1803, and of the Society under that act, that the Society should embrace every respectable, educated physician residing in the Commonwealth, who should be disposed to connect

himself with it. Neither the Act of Incorporation nor the By-laws contemplate the entire separation from the Society of any Fellow who should remove from the State, but only a suspension of his duties and obligations to the Society, so long as his absence cuts him off from a direct enjoyment of its privileges. If he returns to the State, as a resident, he has a right to resume those privileges, and the Society cannot justly deprive him of them; and it follows, of course, that the duties of Fellowship remain attached to him on his return, without any more act of recognition of them on his part. The Committee are therefore unanimously of opinion, and respectfully Report,—that a Fellow of this Society who removes from the State and returns again to it, resumes all the rights and privileges, and all the obligations of a Fellow, from the time that he regains a residence in this Commonwealth.

WOODBRIDGE STRONG,
ENOCH HALE,
D. HUMPHREYS STORER.

On motion of Dr. Hale, Voted,—that the Treasurer, with the advice of the President, shall take such legal measures as may seem necessary and proper, to enforce the payment of assessments of delinquent members.

The meeting was then dissolved.

D. HUMPHREYS STORER,
Recording Secretary.

FEBRUARY MEETING, 1844.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Wednesday, Feb. 7, 1844, at 11 o'clock, A. M.

The record of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since the last stated meeting.

Dr. Fisher, of Boston, chairman of the Committee, appointed at the June meeting of the Counsellors, to report upon the subject of the Society's engaging in a series of statistical and other investigations, presented an elaborate report.*

The Report was accepted, and a Committee, consisting of Dr. Fisher, of Boston, Dr. Jarvis, of Dorchester, and Dr. Holmes, of Boston, was appointed to lay the whole subject before the members of the Society, and to devise plans and means to carry the matter into execution.

On motion of Dr. Hale, it was voted,—that the said Committee be authorized to draw on the Treasurer for the sum of thirty dollars to defray any expense which might be incurred by them in carrying out the objects in view.

Dr. John Homans, of Boston, was chosen to deliver the annual address,—Dr. Ware having declined.

On motion of Dr. Hale, it was voted,—that the Committee appointed to audit the Treasurer's accounts, be directed to examine also the accounts of the Fellows of the Society, and report generally on the state of the collection of assessments.

Drs. Hale and Buck were appointed a Committee to examine the Treasurer's accounts.

Drs. Thomas and Flint were appointed a Committee to examine the Library;—and also to ascertain the number of volumes of each volume of Practical Medicine contained therein.

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* See Proceedings of the Society, pp. 48—66.

Drs. Townsend, Morrill and Lewis were appointed a Committee to attend to the proper apportionment of Counsellors.

The meeting was then dissolved.

SAMUEL MORRILL, *Sec'y. Pro. Tem.*

MAY MEETING, 1844.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Thursday, May 30th, 1844, at 10 o'clock, A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who had become Fellows of the Society since the last meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Dalton, of Lowell, Fisher, of Boston, and Ufford, of South Hadley, were appointed Scrutineers.

The following gentlemen were elected to the several offices.

JACOB BIGELOW, *President*; ROBERT THAXTER, *Vice President*; SAMUEL MORRILL, *Corresponding Secretary*; D. HUMPHREYS STORER, *Recording Secretary*; WOODBRIDGE STRONG, *Treasurer*; CHARLES G. PUTNAM, *Librarian*.

CENSORS. *For the first Medical District, and the Society at large*, Drs. Z. B. Adams, John Jeffries, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

Second Medical District, Drs. Benjamin F. Heywood, C. W. Wilder, William Workman, Benjamin Pond, Joseph Sargent.

Third Medical District, Drs. David Bemis, E. E. Denniston, Addison S. Peck, Daniel Thompson, James Dean.

Fourth Medical District, Drs. Henry H. Childs, R. Fowler, A. G. Welsh, R. Worthington, N. S. Babbitt.

Fifth Medical District, Alexander Read, Andrew Mackie, Samuel Sawyer, Amory Glazier, Joseph Haskell.

The Treasurer's report on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted.

The report of the Committee appointed to examine the Library was read and accepted.

The report of the Censors for the first Medical District and for the Society at large was read and accepted.

Drs Homans, Storer, and J. B. S. Jackson, were chosen Committee on Publications.

Drs. Strong, Lewis, and Otis, were chosen Committee on Resignations.

Dr. William J. Walker, of Charlestown, was chosen to deliver the next Annual Discourse.

Dr. Hale having declined being considered a candidate for re-election on the Publishing Committee, it was

Voted, That the thanks of the Counsellors be presented to Dr. Hale, for his long continued and very faithful services.

Dr. Bartlett, of Concord, moved that a Committee of five be chosen from among the Counsellors, to investigate the subject of insanity among the colored population, which subject was referred to the Council by the Society, and to report at the next meeting of the Counsellors.

Drs. Homans, Ware, Holmes, Jarvis, and Buck, were appointed this Committee.

Voted, That a Committee be appointed to consider the expediency of recommending to the Society to amend the By-laws, or rules and orders, as follows, viz.:

1. In reference to the powers and duties of the Treasurer, so as to provide, if possible, a more efficient system of collection, and a more perfect state of the accounts.

2. In regard to the distributions of books; and to provide for returns from the Librarians of District Societies.

3. So as to provide that the Corresponding Secretary, Recording Secretary, and Librarian, be a Standing Committee to revise and correct, from time to time, the Catalogue of Members of the Society.

Drs. Hale, Morrill and Gould were chosen this Committee.

Voted, That the Treasurer be directed to put in suit the accounts of those Fellows of the Society whose dues amount to four assessments or more, unless there shall, in any case, appear to be good reason for further indulgence; provided that he shall first give notice to every such Fellow of the passage of this vote, and wait a reasonable time for a reply to such notice; and in every case where application is made for relief or delay, he shall communicate it to the Counsellors, and wait for their decision upon it.

Dr. Dalton, of Lowell, presented the request of a Committee of Members of the Massachusetts Medical Society, resident in the northerly section of the county of Middlesex, that the Counsellors would issue a charter for the establishment of a District Medical Society.

This subject was referred to a Committee, consisting of Drs. Dalton, Green and Howe, with the request that they report to the Counsellors at the next stated meeting.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,
Recording Secretary.

The following gentlemen have been allowed to resign their Fellowship: Daniel Green, Auburn, 1844; Nathaniel S. Prentiss, Roxbury, 1844; Benjamin James, Weston, 1844; and being more than sixty years of age, they have become retired members.

The following gentlemen have become Fellows of the Society:

By election. In 1844, Thomas F. Sexton, Boston.

By signing By-Laws in course. In 1841, James Ayer, Sandwich.

By signing By-Laws in course. In 1843, John Frazier Head, Boston; Wm. J. Currier, Lynn; Edward P. Le Prohon, Boston; Alexander Jackson, Boston; Moses W. Weld, Boston; Edward Brooks, Jr., Boston; Edward D. G. Palmer, Boston; John Spence, Jr., Boston; Charles Bailey, East Medway; Cleveland S. Stilwell, Lancaster.

In 1844, Henry J. Bigelow, Boston; Benjamin H. Ellis, Springfield; Charles A. Lockerby, East Bridgewater; Henry D. Hitchcock, Middleborough; Alvan Bacon, Boston; Anthony Woodside, Roxbury; S. Watson Drew, Woburn; Wm. E. Townsend, Boston; Benjamin Hubbard, Weymouth; L. B. Russell, Boston; Edward B. Peirson, Salem; Wm. H. Thayer, Boston; Charles E. Buckingham, Boston: Charles A. Phelps, Boston; Freeman H. Jenkins, West Harwich; Henry Russell, New Bedford; Justin E. Stevens, Boston; Jonas W. Holman, Boston; Wm. S. Coffin, Boston; Francis M. McLellan, Boston; Jerome Harris, West Cambridge; Fordyce Foster, Cohasset; Charles Knowlton, Ashfield; John Heard, Holliston; William Knight, Marlborough; Miles Spaulding, Dunstable; George B. Loring, Chelsea; John Bartram, Townsend; Sidney Drinkwater, Chelsea.

Officers of the Massachusetts Medical Society.

ELECTED MAY 30, 1844.

JACOB BIGELOW, *President.*

ROBERT THAXTER, *Vice President.*
SAMUEL MORRILL, *Corresponding Secretary.*
D. HUMPHREYS STORER, *Recording Secretary.*
WOODBRIDGE STRONG, *Treasurer.*
CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the Society at large, and the first Medical District,* Z. B. Adams, John Jeffries, Anson Hooker, Winslow Lewis, Jr., George W. Otis, Jr.

For the second District, Benjamin F. Heywood, C. W. Wilder, Wm. Workman, Benjamin Pond, Joseph Sargent.

For the third District, David Bemis, E. E. Denniston, Addison S. Peck, Daniel Thompson, James Dean.

For the fourth District, Henry H. Childs, Royal Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

For the fifth District, Alexander Read, Andrew Mackie, Samuel Sawyer, Amory Glazier, Joseph Haskell.

Committee on Publications, J. Homans, D. H. Storer, J. B. S. Jackson.

Committee on Resignations, W. Strong, W. Lewis, Jr., G. W. Otis, Jr.

William J. Walker, M. D., of Charlestown, is appointed to read the next annual discourse.

Officers of District Medical Societies.

Essex Southern District Society. Andrew Nichols, *President.* Abel L. Peirson, *Vice President.* Geo. Choate, *Treasurer.* William P. Richardson, *Librarian.* William Mack, *Secretary.*

Worcester District Society. No return.

Berkshire District Society. No return.

Hampshire District Society. No return.

Southern District Society. Alexander Read, *President.* John Perkins, Julius S. Mayhew, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Aaron Cornish, *President.* Henry Tuck, *Vice President.* James Ayer, *Secretary.* John Harpur, *Treasurer.* Elijah W. Carpenter, *Librarian* and *Curator.*

Hampden District Society. David Bemis, *President.* Wm. A. Davis, *Treasurer, Secretary* and *Librarian.*

Essex North District Society. Rufus Longley, *President.* John Atkinson, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

APPENDIX.

1845.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held Wednesday, May 28th, at the Masonic Temple, Tremont street, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

The following report of the Committee, appointed at the last meeting of the Counsellors, to attend to the proper apportionment of Counsellors, was read and accepted:

Essex Southern District Medical Society is entitled to	8
Essex North " " "	3
Worcester, " " "	10
Berkshire, " " "	4
Hampshire, " " "	4
Southern, " " "	4
Barnstable, " " "	3
Hampden, " " "	4
Bristol County, unconnected with District Society,	2
Franklin County, " "	3
Nantucket, " " "	1
Plymouth, " " "	3

Middlesex District Medical Society,		7
Middlesex County, unconnected,		9
Norfolk County,	"	6
Suffolk County,	"	25

All which is respectfully submitted, by

S. MORRILL,
D. HUMPHREYS STORER,
CHARLES G. PUTNAM,
} *Committee.*

Reports were then read from the Secretaries of the Essex South, Essex North, Hampshire, Southern, Barnstable, Hampden, and Middlesex District Medical Societies, stating the organization of the several Societies, for the year 1845, — and nominating to the Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Z. B. Adams, of Boston, Sargent, of Worcester, Homans, of Boston, Read, of New Bedford, and Cutter, of Pepperell, were appointed Scrutineers.

The Scrutineers reported the following gentlemen as having been elected as Counsellors:

Essex Southern District Society. Drs. Andrew Nichols, Abel L. Peirson, Ebenezer Hunt, George Choate, Joseph Reynolds, Samuel Johnson, William Prescott.

Worcester District Society. Drs. Stephen Bachelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, John G. Metcalf, Pearson T. Kendall, Joseph Stone, William Workman, D. S. C. H. Smith.

Berkshire District Society. Drs. Henry H. Childs, Asa G. Welch, Royal Fowler, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, Edward G. Ufford, A. S. Peck, H. Thompson.

Southern District Society. Drs. Paul Spooner, Alexander Read, Amory Glazier, Leroy M. Yale, John Perkins.

Barnstable District Society. Drs. Elijah W. Carpenter, Thomas P. Jackson, George Atwood.

Hampden District Society. Drs. William Bridgman, David Bemis, Jehiel Abbott, James M. Smith.

Essex North District Society. Drs. Rufus Longley, Dean Robinson, Richard S. Spofford.

Franklin County. Drs. Alpheus F. Stone, Stephen W. Williams, Christopher Dean.

Middlesex County. Drs. Timothy Wellington, Zadok Howe, John C. Dalton, Elisha Huntington, Anson Hooker, Nehemiah Cutter, J. S. Hurd, C. F. Chaplin, Simon Whitney, Horatio Adams, Hiram Hosmer, Luther V. Bell, J. M. Whittemore, Harlin Pillsbury, D. Mowe, Peleg Bradley.

Norfolk County. Drs. Nath'l. Miller, Robert Thaxter, Jeremy Stimpson, Eben'r. Alden, Eben'r. Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County—(not included in District Society.)—Drs. Ezekiel Thaxter, Paul L. Nichols, Winslow Warren.

Bristol County—(not included in District Society.)—Drs. Caleb Swan, Alfred Wood.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Jr., Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, John D. Fisher, Charles G. Putnam, John B. S. Jackson, Alexander Thomas, Ephraim Buck, A. A. Gould, Charles T. Jackson, Marshall S. Perry.

The report of the Committee appointed at the last meeting of the Counsellors, to examine the Library and Cabinet, was read and accepted.

The Treasurer's annual report was read and accepted; from which it appeared that the amount received into the Treasury, during the year, ending May 27th, 1845,

was, - - - - - - - -	$1662 38
The amount of expenses, - - -	773 93
Leaving a balance of - - -	$888 45

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $8817 25.

The following report of the Auditing Committee was then read and accepted:

They find the books correctly kept, and the accounts properly cast and vouched; and that there have been received, $1662 38; and expended, $773 93; leaving a balance on hand of $888 45.

They also find the amount of the Permanent Fund, represented by three policies in the hands of the Treasurer, to be $8817 25.

There are also in his hands promissory notes to the amount of $65.

The Committee feel bound to testify to the unusual and successful exertions of the Treasurer, in the collection of assessments long outstanding; so that he has collected of such arrears upwards of $450.

EPHRAIM BUCK, } *Auditing*
AUGUSTUS A. GOULD, } *Committee.*

Boston, May 26, 1845.

The Committee on Publications presented the following report, which was accepted:

That in accordance with a vote of the Counsellors, passed at their meeting in October last, they contracted with Mr. H. G. Langley, of New York, for 750 copies of a volume of Copland's Medical Dictionary, then in course of re-publication by him,—said volume being in continuation of the work comprised in the two volumes heretofore published, and distributed to the members of the Society; to be delivered in Boston in all the month of April last; and a volume every succeeding year, until the work shall be completed.

Your Committee had no reason to doubt the fulfilment of the contract, until the middle of April, when they were informed by the Editor, Dr. Lee, that Mr. Langley had transferred his interest in the re-publication to the Messrs.

Harper, who, desiring to make the work as complete as possible, so far as additions from the Medical Literature of our own country is concerned, had not been able to advance the re-publication as rapidly as was at first anticipated, and of necessity, would be unable to furnish the volume promised to the Society, so as to be distributed to the Fellows at their annual meeting.

He stated that the months of May and June would afford time sufficient for the completion, and that we might receive it early in July.

On learning these facts, the Committee, considering that it was impracticable to procure a substitute in season, of necessity acceded to the proposed delay.

While they regret the delay in its timely reception, they think that some compensation will be found for the disappointment, in the value of the work, and are encouraged to hope that the remaining volumes will be punctually received.

JOHN HOMANS,
D. H. STORER,
J. B. S. JACKSON,
} *Committee.*

On the recommendation of the Counsellors,—

Voted, That the XLVIth By-Law be amended by adding a fourth section as follows, viz.:

"IV. The Librarian of every District Medical Society shall make a report to the Librarian of this Society, in the month of January annually, of the books distributed in said District Society during the year previous, and of the copies remaining in his possession; and no additional copies of the Library of Practical Medicine shall be sent to any District Society, until a sufficient report has been received as aforesaid."

On the same recommendation,—

Voted, That the following additional "Orders" be enacted, viz.:

"XVIII. The Treasurer shall keep the money of the Society safely deposited in some Bank. He shall keep the accounts so as to exhibit clearly the state of the account of each individual Fellow of the Society, and of each District

Society, as well as of the general accounts of the Society. He shall report to the Counsellors at their first meeting after the annual meeting of the Society, the names of the delinquent members from whom assessments are then due for four or more years, with such information as he may possess that may be important in regard to them. He shall receive a salary of *one hundred dollars* a year, in lieu of compensation for clerk hire, and the ordinary expenses of collecting assessments."

"XIX. The Corresponding Secretary, Recording Secretary, Treasurer, and Librarian, shall be a standing Committee, to revise and correct, from time to time, at least once in each and every year, the catalogue of members of the Society. They shall report at the opening of each annual meeting, the number of Fellows in each District Society, and in each county included in any District Society, and the number of Counsellors to be elected in each.

At one o'clock the Annual Address was read by Dr. William J. Walker, of Charlestown, "On the Treatment of Compound and Complicated Fractures."

On motion of Dr. Homans, it was

Voted, That the thanks of the Society be presented to Dr. Walker for his learned and practical discourse.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

The Fellows of the Society then proceeded to the Hall over the Worcester Railroad Depot, and dined together, to the number of 400.

Proceedings of the Counsellors.

OCTOBER MEETING, 1844.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, October 2d, 1844, at 11 o'clock, A. M.

The records of the last meeting having been read,—

Dr. Homans, of the Committee appointed to investigate the subject of insanity among the colored population, presented, in behalf of that Committee, the following partial report, which was accepted, and the further consideration of the subject was referred to the same Committee.

The Committee appointed at the meeting of the Counsellors in May last, to investigate the subject of insanity among the colored population in the State of Massachusetts, which subject was referred to the Counsellors by the Society, and to report thereon at the next meeting of the Counsellors, beg leave to submit the following

REPORT.

Your Committee ascertained that fifty-four towns were stated by the census each to contain one or more colored persons, who were either insane or idiotic, or deaf and dumb, or blind. To test the truth of this statement, they addressed some responsible individual, either a physician, or clergyman, or postmaster, residing in each of these several towns, by a circular letter, containing the requisite inquiries. To this circular, forty-seven answers have been received. In these forty-seven towns, there were in 1840, according to the census, one hundred and seventy-three colored persons insane or idiotic, four deaf and dumb, and six blind. But the result of our inquiries, is, that there were at the time of taking the census in 1840, twenty-one colored persons insane or idiotic, two deaf and dumb, and four blind in these same forty-seven towns. The error, in some instances, evidently arose from the insertion of the number of white persons who were insane or idiotic, or blind, or deaf and dumb, into the column appropriated to the enumeration of the colored insane, &c. &c. The manner in which the column of insane colored persons is headed in the printed form used in taking the census, is such as to render this error very liable to be committed.

One or two instances will suffice to illustrate this. In the

town of Worcester, there were, according to the census, in the family of Dr. S. B. Woodward, one hundred and thirty-three colored insane persons, supported at public charge, whereas all the insane persons then in the Hospital, as appears by Dr. Woodward's records to have been one hundred and thirty-three, were placed in the column of colored persons. Now in truth, when the census was taken, there were in the hospital, under Dr. Woodward's charge, seven colored insane persons only, and these were supported at public charge. The error is common in that record of the census, for we learn that two deaf and dumb white persons in the same town were placed in the column of colored persons. Again, your Committee learn that there were four insane or idiotic persons, all of whom were white, whose names were placed in the column of the colored insane.

In the town of Rochester, it is stated that there were three insane colored persons supported at private charge, viz.: one in the family of Gideon Barstow, another in the family of Josiah Bisbee, and a third in the family of Josiah D. D. L. Hathaway; and beside these, one blind colored person is stated to have been in the family of John Clapp. Now it appears that the individuals alluded to were all of them white. The one in the family of Gideon Barstow, was his brother Benjamin; Josiah Bisbee himself was partially insane; Josiah D. D. L. Hathaway was also insane, and John Clapp was blind. We might in this manner examine the list in detail, and point out numerous errors, but we deem these sufficient for the present.

Your Committee desire further opportunity to investigate the subject, and obtain all the information they have requested, and therefore ask leave to sit again and report hereafter.

Respectfully,

JOHN HOMANS,
For the Committee.

Boston, Oct. 2, 1844.

The Committee appointed to report on the expediency of recommending to the Society to amend the By-Laws and

Orders, respectfully recommend the adoption of the following Resolutions:

1. *Voted*, That the Counsellors recommend to the Society at the next annual meeting, to amend the By-Laws, by adding to the XLVIth By-Law a fourth section as follows, viz.:

"IV. The Librarian of every District Medical Society shall make a report to the Librarian of this Society in the month of January annually, of the books distributed in said District Society, during the year previous, and of the copies remaining in his possession; and no additional copies of the Library of Practical Medicine shall besent to any District Society, until a sufficient report has been received as aforesaid."

2. *Voted*, That the Counsellors recommend to the Society, at the next annual meeting, to enact the following additional "Orders," viz.:

"XVIII. The Treasurer shall keep the money of the Society safely deposited in some Bank. He shall keep the accounts so as clearly to exhibit the state of the account of each individual Fellow of the Society, and of each District Society, as well as of the general accounts of the Society. He shall report to the Counsellors at their first meeting after the annual meeting of the Society, the names of all delinquent members from whom assessments are then due for four or more years, with such information as he may possess, that may be important in regard to them. He shall receive a salary of one hundred dollars a year, in lieu of compensation for clerk hire, and the ordinary expenses of collecting assessments.

"XIX. The Corresponding Secretary, Recording Secretary, Treasurer, and Librarian, shall be a standing Committee, to revise and correct from time to time, at least once in each and every year, the catalogue of members of the Society. They shall report at the opening of each annual meeting, the number of Fellows in each District Society, and in each county, not included in any District Society, and the number of Counsellors to be elected in each.

All which is respectfully submitted,

ENOCH HALE, *For the Committee.*

Voted, That the Committee on Publications be authorized to select and publish a fifteenth volume of the Library of Practical Medicine, to be issued at the next annual meeting; one copy to each District Medical Society's Library, one copy to each retired member, and one copy to each Fellow of the Society, who shall have paid his assessments to that time; and that the President of the Society be authorized to order the payment of not exceeding one half the cost of said volume before its full completion, in case it shall, in his judgment, and in the judgment of the Committee, seem expedient to do so; *provided*, that the whole expense shall not exceed one thousand dollars.

Voted, That the Committee on Publications be authorized to bind the Society to take the subsequent parts of Copland's Medical Dictionary in future volumes of the Library of Practical Medicine, if they shall be able to obtain it on such terms as that they shall believe it for the interest of the Society so to do.

Doct. Dalton, in behalf of the Committee to whom was presented the petition of several members resident in the northerly section of the county of Middlesex, for the establishment of a District Medical Society, offered the following Report, which was adopted:

"The Committee to whom was referred the petition of sundry Fellows, resident in the northerly section of the county of Middlesex, praying the Counsellors to issue a charter for the establishment of a District Medical Society, to embrace certain specified limits in said county, beg leave to report:

That after such inquiries as they were enabled individually to make, they received the impression that but an inconsiderable fraction of the Fellows residing within the limits specified, had been consulted, or had expressed any wish in relation to the proposed Society. They therefore, after discussion, came to the conclusion, that unless they should, previously to the meeting of the Counsellors, at which they were expected to report, receive some assurance that the majority of the Fel-

lows interested were desirous of the establishment of such a Society, and would give some pledge that they would attend its meetings, and otherwise, as opportunity should occur, endeavor to promote its interests, they should feel constrained to report unfavorably on the petition. With this view, your Committee drew up a paper with the following caption:

The undersigned, members of the Massachusetts Medical Society, resident in the northerly section of the county of Middlesex, believe that the establishment of a District Medical Society within its limits, embracing the following towns, viz.: Lowell, Billerica, Ashby, Townsend, Pepperell, Dunstable, Groton, Shirley, Tyngsboro', Chelmsford, Carlisle, Littleton, Dracut, Tewksbury, Concord, and Acton (the meetings of which shall be holden in the city of Lowell), would be of great utility. Being desirous of enjoying the advantages and privileges of such an institution, we do hereby pledge ourselves (should a petition for a charter to that effect, already in the hands of the Counsellors, be granted) to become active members of the same, by attending its meetings, and otherwise promoting its interests as opportunity may occur.

Your Committee felt that they should be authorized to report favorably on the petition referred to them, when the names of a respectable majority of the Fellows interested should be affixed to such a pledge. Such a paper having been circulated within the last few weeks among the Fellows residing within the proposed limits, has received the signatures of twenty-three out of twenty-seven Fellows of the Society. Several other Fellows, whose names do not appear on the paper, have previously expressed themselves favorably to the proposed measure, and are ready to sign it on application. Your Committee, therefore, are of opinion that it is expedient for the Counsellors to grant a charter for a District Medical Society as proposed for by the petitioners.

All which is respectfully submitted,

JOHN C. DALTON,
For the Committee.

Voted, That a charter be granted for a District Medical Society, in conformity to the above report.

The following complaint was presented, and a Committee, consisting of Drs. Brown, of Medway, Stone, of Walpole, and Phelps, of Attleboro', was chosen to investigate the subject, and report thereupon at the next meeting of the Counsellors:

"The undersigned, members of the Massachusetts Medical Society, would respectfully represent to the Board of Counsellors, that Dr. Lyman B. Larkin, of Wrentham, has, for a number of years past, been in the constant practice of violating the 10th and 58th Articles of the By-Laws of said Society, by advertising, recommending and selling secret Medicines, and abetting irregular practitioners in the sale of the same. We would therefore respectfully request that a Committee be appointed to investigate the case, that the reputation of our Society may suffer no longer.

THADDEUS PHELPS,
JAMES W. FOSTER."

Dr. Harpur, Librarian of the Barnstable District Medical Society, requested that the Counsellors would appoint some Fellow to designate sixty Volumes, to which that Society was entitled by our By-Laws.

Voted, That the Librarian be authorized to designate and deliver the volumes asked for.

A letter was read from Dr. William J. Walker, accepting the appointment to deliver the Annual Address before this Society.

Drs. Alvan Hyde Turner, of Tyringham, Noble B. Pickett, of Great Barrington, and Isaac Colby, of Salem, were elected Fellows of the Society.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,
Recording Secretary.

FEBRUARY MEETING, 1845.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont Street, on Wednesday, February 5th, 1845, at 11 o'clock, A. M.

The records of the last meeting were read.

The Treasurer having stated that he had received a large number of letters from delinquent members of the Society, which he wished to lay before the Counsellors for their consideration, upon motion of Dr. Shattuck it was

Voted, That a Special Committee be appointed, with full power to examine and adjust all claims against delinquent members.

The Treasurer and two Secretaries were appointed that Committee.

The Committee appointed to examine the case of Dr. Larkin, of Wrentham, presented the following Report:

The Committee appointed to investigate certain charges preferred against Dr. Larkin, attended to that duty, and beg leave to report:

That they held a meeting at Wrentham, at which Dr. Larkin was present. It appears that Dr. Larkin has used "Page's Vegetable Syrup," and that he wrote a letter to the proprietor recommending the same, as will be seen by referring to the accompanying documents. But he says in answer, that the letter was published without his knowledge or consent; and further, that it was written before he was aware of the existence of the fifty-eighth By-Law, if it really existed at that time, and that it has been his intention to conform to the By-Laws of the Society, and in future, he shall endeavor to do the same, even if it should deprive him of the liberty of selling this medicine, in case the Counsellors should decide that such sale is a violation of the By-Laws.

He likewise acknowledges that he has used "Dr. Lee's Gravel Specific,"—in explanation of which he referred the Committee to the communication of Dr. J. C. Warren, contained in the October number of the American Journal of Medical Science, pages 305 and 306. We likewise refer to the accompanying documents for an account of "Dr. Lee's Specific." All which is respectfully submitted,

ARTEMAS BROWN,
EBENEZER STONE,
THADDEUS PHELPS.

This Report was accepted, and on motion of Dr. Hale, it was

Voted, Inasmuch as Dr. Larkin declares that his violations of the fifty-eighth By-Law were in ignorance of its provisions, and avows his determination to conform to it in future, therefore,

Voted, That the Counsellors take no further order on the subject.

Voted, That the Counsellors recommend to the Society at the next annual meeting, to amend the XIIIth Article of the By-Laws, by adding thereto the following words,—"Whenever a member of the Massachusetts Medical Society, not a member of the Board of Counsellors, shall be appointed on any Committee by the Society at large, or by the Counsellors, at any of their meetings, to report to the Counsellors, he shall be requested to meet with the Committee, and take part in their discussions, on the subject so committed, until it shall have been definitely disposed of."

The Committee appointed at the meeting of the Counsellors, in May last, to investigate the subject of Insanity among the colored population in the State of Massachusetts, presented their final report—which was accepted.

The Committee appointed at the meeting of the Counsellors in May last, to investigate the subject of Insanity among the colored population, in the State of Massachusetts, which subject was referred to the Council by the Society, and to report thereon at the next stated meeting of

the Counsellors, having reported at that meeting and obtained leave to sit again, beg leave to submit the following as their final Report:

The statements respecting the prevalence of Insanity—of deafness and dumbness, and of blindness, among the colored population of this State, made in the printed edition of the sixth census of the United States, differ so widely from the ordinary opinions of medical men in regard to the liability of any class or race of people to these derangements, that they were induced to make especial inquiry, as to the facts as they present themselves to the members of the Society.

The Massachusetts Medical Society embraces within its membership almost all the practising physicians in the State, and has one or more of its members in almost every town, village and neighborhood, and have therefore knowledge of, or the means of ascertaining, the domestic condition of almost every family within this Commonwealth.

A Committee appointed for this purpose, by the Society, examined the printed editions of the late census, and also the manuscript copies of the same relating to Massachusetts, now deposited in the District Clerk's Office, in Boston.

According to the printed edition, the insane, blind, deaf and dumb colored persons were in the following towns.

COLORED INSANE, BLIND, AND DEAF AND DUMB.

TOWNS.	INSANE.	BLIND.	DEAF AND DUMB.
New Bedford,	2		
Freetown,	2		
Raynham,	1		
Taunton,	2	1	
Swanzey,	2		
Attleboro',	1		
Carver,	1		1
Wareham,	1		
Plympton,	4	1	1
Scituate,	6	1	2
Hingham,	2	7	1
Rochester,	2	2	
Needham,	2		
Randolph,	1		

Quincy,	1	1	
Stockbridge,	1		
Becket,	1		
Sandisfield,	3		
Deerfield,			1
Leverett,		1	
Milford,			4
Mendon,		1	
Uxbridge,		1	
Warren,	1		
Worcester,	133		2
Lancaster,		1	
Sterling,	2		
Princeton,	1		1
Hubbardston,	1	1	
Leominster,	2		
Winchendon,	1		
Lexington,		1	
Reading,	3		
Wilmington,	2		
Bedford,	1		
Townsend,	1		
Concord,	1		
Natick,	1		
Salem,	3		1
Danvers,	2		
Essex,	2		
Topsfield,	1		
Georgetown,	2		
West Springfield,	1		1
Boston,	7	3	2
	200	22	17

No record is found, in the copy of the detailed census of Massachusetts, now in the Clerk's Office, of any colored insane persons in the towns of Freetown, Raynham, Attleboro', Randolph, Quincy, Sandisfield, Warren, Leominster, Reading, Wilmington, Bedford, Townsend, Topsfield, Georgetown,—and in the town of Needham, only one is recorded. In Salem, one; Danvers, one; Essex, one; and Boston, five only are recorded among the colored insane.

The former towns are stated in the printed copy of the census, to have twenty-four colored insane,—and the latter are stated to have seven more than were originally recorded. These thirty-six must have been added by the mistake of the printer, or the copyist.

In the same original copy, is no record of any colored blind

persons in the towns of Hingham, Scituate, Hubbardston, Quincy, Lexington, Leverett, Mendon, Uxbridge, Lancaster.

Nor is there any record in the same copy, of any colored deaf and dumb, in the towns of Milford, West Springfield, Scituate, Worcester, Carver, Hingham, Princeton, Salem.

The thirteen colored blind, and the eleven colored deaf and dumb, which are stated by the printed copy of the census to be in these towns, must also have been added by the error of the printer, or the amanuensis.

Subtracting these numbers which were not in the original record, from the numbers in the printed report, would leave only one hundred and seventy-four insane, nine blind, and six deaf and dumb, among the colored population of Massachusetts, according to the Marshal's record.

That record states the colored insane to be in the following towns, and in the families of the following persons:

Towns.	*Insane.*	*Householders.*
Swanzey,	1	James Peckham.
	1	Richard Walker.
Wareham,	1	Mary Howard.
Carver,	1	Job Morton.
Plympton,	4	Jacob Cushman.
	1	Simeon Churchill.
Hingham,	1	Warren Thayer.
	1	Thomas Leavitt.
Needham,	1	Alvah Knowlton.
Becket,	1	Eben Rudd.
West Springfield,	1	Levi Cooper.
Worcester,	133	Samuel B. Woodward.
Sterling,	2	Israel Palmer.
Hubbardston,	1	Artemas Hubbard.
Winchendon,	1	Deborah Greenwood.
Concord,	1	Abel Moore.
Natick,	1	Dexter Moulton.
Salem,	1	Mrs. J. Fay.
Essex,	1	Joseph Chadbourn.
Topsfield,	1	Porter Kneeland.
Andover,	1	Joseph Stevens, 3d.
New Bedford,	2	Peleg S. Allen.
Rochester,	1	Gideon Barstow.
	1	Josiah Bisbee.
	1	J. D. D. L. Hathaway.
Danvers,	1	Cornelius Roundy.
Stockbridge,	1	Rufus B. Jafferd.
Boston,	1	Daniel Chandler.

Towns.	*Insane.*	*Housekeepers.*
.....	4.....	John S. Butler.
Scituate,....	1.....	Freeman Foster.
.....	1.....	John B. Elmes.
.....	1..... ...	Samuel Stoddard.
.....	1.....	Martin Damon.
.....	1.....	Noah B. Nichols

In the same record the colored blind are stated to be in the following towns and families:

Towns.	*Number of Blind.*	*Heads of Family.*
Taunton,....	1.....	Peter Adams.
Carver,.....	1	Levi Vaughan.
Plympton,.....	1.....	Jacob Cushman.
Rochester,..	1...	John Clapp.
Boston,.....	2.....	Daniel Chandler.
....	1.....	Thomas George.
.....	1.....	B. Haggarty.
Edgartown,.....	1.....	Jethro Ripley.

The deaf and dumb are stated to be as follows:

	Deaf and Dumb.	
Plympton,.....	1.....	Simeon Churchill.
Deerfield,.....	1.....	Dennis Stebbins,
Boston,.....	1.....	John White.
....	1.....	Thomas Maguire.
....	1.....	Elijah Loring.
Scituate,.....	1.....	Samuel Stetson.

Your Committee, through the members of the Society who lived in these towns, made inquiry in regard to every family and town herein above named, and have received the report from every town, excepting two, Carver and Swanzey.

The result of this special examination shows that the printed census, Blair and Rives' edition, is correct in regard to the towns of Andover, New Bedford, West Springfield, Becket, Uxbridge, Deerfield, Concord, Warren.

That in Salem, there were but two colored insane, instead of three, as printed; in Worcester seven, instead of one hundred and thirty-three; and in Taunton, there were three blind, instead of one, as printed in the sixth census; Boston five insane, instead of seven.

That in all the other towns or cities of Massachusetts, which are reported, in Blair and Rives' edition of the sixth cen-

sus, to have colored blind, insane or deaf and dumb, there were in the year 1840, excepting Carver and Swanzey, no colored persons, who were insane, idiotic, blind, or deaf and dumb.

Your Committee would further state that many families which are recorded, and reported as having *colored* insane, blind, or deaf and dumb persons, were found not only to have no such persons, but had *white* insane, blind, or deaf and dumb persons, who were not so recorded and reported. In these cases, the error was in the Marshal's placing these in the wrong column, and in several instances this mistake was made in the condensation of the detailed report into the abstract of the towns.*

All which is respectfully submitted,

JOHN HOMANS,
JOHN WARE,
EPHRAIM BUCK,
O. W. HOLMES,
E. JARVIS.

Boston, February 5, 1845.

Drs. Buck and Gould were appointed a Committee to examine the Treasurer's accounts.

Drs. Thomas and Flint were appointed a Committee to examine the Library.

Drs. Morrill, Storer and Putnam were appointed a Committee to attend to the proper apportoinment of Counsellors.

Drs. N. B. Shurtleff, Cole and Abbott were appointed a Committee to furnish the members of the Society with Vaccine Virus at the next Annual Meeting.

Dr. Seba Carpenter, of Attleboro' was elected a Fellow of the Society.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'y.*

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* A singular illustration of this is found in the manuscript reports of the town of Pepperell, Mass. The original detailed report states that there are fifteen *white lunatics* in the family of Charles E. Parker. The copyist, in his abstract, first wrote fifteen *blind*, when, perceiving his error; he crossed this record, and then wrote it fifteen *colored lunatics*, and so it stands in the Clerk's Office, at Boston.

MAY MEETING, 1845.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Thursday, May 29, 1845, at 10 o'clock, A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen who have become members of the Society since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of Officers for the ensuing year.

Drs. Otis, of Boston, Nichols, of Kingston, and Prescott, of Lynn, were appointed Scrutineers.

The following gentlemen were chosen to the several offices.

Jacob Bigelow, *President;* Edward Flint, *Vice President;* Samuel Morrill, *Corresponding Secretary;* D. Humphreys Storer, *Recording Secretary;* Augustus A. Gould, *Treasurer;* Charles G. Putnam, *Librarian.*

Censors. *For the First Medical District and the Society at large,* Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

Second Medical District, Drs. B. T. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

Third Medical District, Drs. David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, Alpheus F. Stone.

Fourth Medical District, Drs. Henry H. Childs, R. Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

Fifth Medical District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

The following communication was read, and it was voted, to comply with the request of the petitioners to the Counsellors of the Massachusetts Medical Society.

The undersigned respectfully request that Censors may be chosen for the County of Barnstable, to be called the Sixth Medical District.

E. W. CARPENTER,
GEORGE ATWOOD.

The following gentlemen were elected Censors.

For the Sixth Medical District, Drs. Aaron Cornish, Henry Tuck, E. W. Carpenter, Thomas P. Jackson, George Atwood.

The Treasurer's report on the annual income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted.

The report of the Committee appointed to examine the Library was read and accepted.

The report of the Censors for the First Medical District and for the Society at large, was read and accepted.

Drs. Homans, Storer, and J. B. S. Jackson, were chosen Committee on Publications.

Drs. Gould, Lewis, and Otis, were chosen Committee on Resignations.

Dr. John C. Dalton, of Lowell, was chosen to deliver the next annual address.

Dr. Thaxter, having declined re-election as Vice President, on motion of Dr. Homans it was

Voted, That the thanks of the Society be presented to Dr. Thaxter, for the able and courteous manner with which he has performed the duties of his office.

Dr. Strong having declined re-election as Treasurer, on motion of Dr. Buck,

Voted, That the thanks of the Counsellors be presented to Dr. Strong, our late Treasurer, for the faithful manner in which he has performed the duties of his office. And that in consideration of the arduous duties performed by him the past year, in that capacity, he be presented with one hundred dollars.

Voted, That Drs. Homans, Buck and Putnam, be a Committee to attend to the transferring of the Funds of the Society, from the late to the present Treasurer.

Voted, That the Committee on Publications be authorized to select and publish a sixteenth volume of the Library of Practical Medicine, to be issued at the next annual meeting, one copy to each District's Society's Library, one copy to each retired member, and one copy to each Fellow of the Society, who shall have paid his assessments to that time; and that the President of the Society be authorized to order the payment of not exceeding one half the cost of said volume, before its full completion, in case that it shall, in his judgment, and in the judgment of the Committee, seem expedient to do so. *Provided*, That the whole expense shall not exceed one thousand dollars.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

The following gentlemen have been allowed to resign their fellowship: William B. Brown, Salem; Benjamin Osgood, Westfield; Joseph Sampson, Brewster; A. C. Smith, Salem; and Jonathan Wilde, of Braintree; and being more than sixty years of age, they have become retired members.

The following gentlemen have become Fellows of the Society.

By election. Alvan Hyde Turner, Tyringham; Noble B. Pickett, Great Barrington; Isaac Colby, Salem; Seba Carpenter, Attleboro'.

By signing the By-Laws in course. In 1844, James B. Dean, Taunton; Alanson Abbe, Roxbury; Joseph Poland, South Reading; Francis Leland, Milford; Alfred A. Lane, Boston; Augustus K. Gardner, Boston; J. Buckminster Brown, Boston; Calvin B. Pratt, Bridgewater; Benjamin P. Randall, Boston; Jasper H. York, Boston; Sereno E. D. Bumstead, Boston; Estes Howe, Boston; Enrigo Biundi, Salem; George B. Parks, Boston; Josiah G. Holland, Springfield; Thomas H. Stewart, Springfield; George Derby, Boston; John R. Wilbur, Springfield; Benjamin L. Ball, Boston; Josiah Curtis, Lowell; Thomas Womersley, Lowell.

Officers of the Massachusetts Medical Society.

ELECTED MAY, 1845.

JACOB BIGELOW, *President.*

EDWARD FLINT, *Vice President.*
SAMUEL MORRILL, *Corresponding Secretary.*
D. HUMPHREYS STORER, *Recording Secretary.*
AUGUSTUS A. GOULD, *Treasurer.*
CHARLES G. PUTNAM, *Librarian.*

CENSORS. *For the Society at large, and the First Medical District,* George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

For the Second District, B. T. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

For the Third District, David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, Alpheus F. Stone.

For the Fourth District, Henry H. Childs, Royal Fowler, A. G. Welch, R. Worthington, N. S. Babbitt.

For the Fifth District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth District, Aaron Cornish, Henry, Tuck, E. W. Carpenter, Thomas P. Jackson, George Atwood.

Committee on Publications, J. Homans, D. H. Storer, J. B. S. Jackson.

Committee on Resignations, A. A. Gould, W. Lewis, Jr., G. W. Otis, Jr.

John C. Dalton, of Lowell, was chosen to deliver the next annual discourse.

Officers of District Medical Societies.

Essex Southern District Society. Abel L. Peirson, *President.* William Prescott, *Vice President.* Augustus A. Holyoke, *Treasurer.* William P. Richardson, *Librarian.* William Mack, *Secretary.*

Middlesex District Society. Nehemiah Cutter, *President.* Elisha Huntington, *Vice President.* J. D. Pillsbury, *Secretary.* J. P. Jewett, *Treasurer.* J. W. Scribner, *Librarian.*

Worcester District Society. Joseph Stone, *President.* William Workman, *Vice President.* C. C. Field, *Secretary.* Joseph Sargent, *Treasurer* and *Librarian.*

Hampshire District Society. Atherton Clark, *President.* Edward G. Ufford, *Vice President.* Hervey Orcutt, *Secretary.* C. A. Hall, *Treasurer.* Daniel Thompson, *Librarian.*

Southern District Society. Alexander Read, *President.* John Perkins, *Vice President.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Henry Tuck, *President.* John Harpur, *Vice President.* Franklin Dodge, *Secretary.* Alexander Poole, *Librarian.* T. P. Jackson, *Treasurer.*

Hampden District Society. John Smith, *President.* Josiah G. Holland, *Secretary, Treasurer* and *Librarian.*

Essex Northern District. George Cogswell, *President.* Benjamin Atkinson, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer.*

APPENDIX.

1846.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held on Wednesday, May 27th, at the Masonic Temple, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

The report of the Standing Committee, on the proper apportionment of Counsellors, was read and accepted.

Reports were then read from the Secretaries of the Essex South, Essex North, Hampden, Southern, Hampshire, Barnstable, and Berkshire District Medical Societies, stating the organization of the Societies, for the year 1846,—and nominating to the Society the Fellows who had been selected for their Counsellors.

Voted, To proceed to the choice of Counsellors.

Drs. Buck, of Boston, Stone, of Hardwick, Bell, of Somerville, Cutter, of Pepperell, and Metcalf, of Mendon, were appointed Scrutineers.

The Scrutineers reported the following gentlemen as having been elected Counsellors:

Essex South District. Drs. Andrew Nichols, A. L. Peirson, E. Hunt, George Choate, Joseph Reynolds, S. Johnson, A. Gould.

Worcester District Society. Drs. Stephen Batchelder, John Green, Edward Flint, Benjamin F. Heywood, Charles W. Wilder, John G. Metcalf, Pearson T. Kendall, Joseph Howe, William Workman, David S. C. H. Smith, T. R. Boutelle.

Berkshire District Society. Drs. Royal Fowler, H. H. Childs, A. G. Welch, Robert Worthington.

Hampshire District Society. Drs. Benjamin Barrett, A. Clark, H. Orcutt, C. A. Hall.

Southern District Society. Drs. Paul Spooner, Alexander Read, John Perkins, P. F. Doggett, L. M. Yale.

Barnstable District Society. Drs. Aaron Cornish, Elijah W. Carpenter, Thomas P. Jackson, George Atwood.

Hampden District Society. Drs. William Bridgman, Jehiel Abbott, David Bemis, James W. Smith.

Essex North District Society. Drs. Rufus Longley, Dean Robinson, Richard S. Spofford.

Franklin County. Drs. Stephen W. Williams, Christopher Dean, S. Deane.

Middlesex County. Drs. Timothy Wellington, Horatio Adams, Hiram Hosmer.

Middlesex District Society. Drs. Nehemiah Cutter, J. R. Dalton, Harlin Pillsbury, Daniel Mowe, Elisha Huntington, Peleg Bradley.

Norfolk County. Drs. Robert Thaxter, Jeremy Stimson, Eben'r. Alden, Eben'r. Stone, Henry Bartlett.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County. Drs. Ezekiel Thaxter, Paul L. Nichols, C. A. Lockerby.

Bristol County. Drs. Caleb Swan, M. R. Randall.

Suffolk County. Drs. George C. Shattuck, Jacob Bigelow, George Hayward, Enoch Hale, John Ware, S. D. Townsend, Z. B. Adams, John Homans, Woodbridge Strong, John Jeffries, G. W. Otis, Winslow Lewis, Jr., Samuel Morrill, J. V. C. Smith, D. H. Storer, John Flint, J. C. Hayden, J. D. Fisher, Charles G. Putnam, J. B. S. Jackson, Alexander Thomas, Ephraim Buck, A. A. Gould, Charles T. Jackson, M. S. Perry, George Bartlett, Martin Gay, Frederic A. Sumner.

The report of the Committee appointed at the last meeting of the Counsellors, to examine the Library and Cabinet, was read and accepted.

The report of the Committee appointed to audit the accounts of the Treasurer, was read and referred to the Counsellors.

The Committee appointed at the last meeting of the Counsellors, to report upon some proposed alterations of the By-laws, presented their report, which was read and referred to the Counsellors.

In pursuance of a recommendation of the Counsellors, adopted February 5th, 1845,—

Voted, To amend the XIIIth article of the By-laws, by adding thereto the following words:—"Whenever a member of the Massachusetts Medical Society, not a member of the board of Counsellors, shall be appointed on any Committee, by the Society at large, or by the Counsellors at any of their meetings, to report to the Counsellors, he shall be entitled to meet with the Committee, and take part in their discussions on the subject so committed, until it shall have been definitely disposed of."

The Treasurer's annual report on the income and expenses of the Society, and on the state of the Permanent Fund, together with the report of the Auditing Committee, was read and accepted; from which it appeared, that the amount received into the Treasury, during the year, ending May 27th, 1846,

was, ...	$2502 48
The amount of expenses, . . .	2028 69
Leaving a balance of . . .	$473 79

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $9258 11.

This report was by accident omitted at the Meeting of the Society, but was presented at the Counsellors' meeting.

A Committee, of Drs. Peirson, Hale and Homans, was appointed to consider what are the relations of those Fellows to the Society who have removed out of the State; and to report to the Counsellors.

At one o'clock the Annual Address was read by Dr. John O. Green, of Lowell.

On motion of Dr. Homans, it was

Voted, That the thanks of the Society be presented to Dr. Green for his able and interesting discourse.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

Proceedings of the Counsellors.

OCTOBER MEETING, 1845.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, October 1st, 1845, at 11 o'clock, A. M.

A letter was read from Dr. Dalton, declining the invitation of the Counsellors to deliver the next annual address before the Society. Whereupon, Dr. John O. Green, of Lowell, was unanimously elected to perform that duty.

A Circular was received from the New York State Medical Society, recommending that a National Medical Convention of Delegates, from Medical Societies and Colleges in the whole Union, should be held in the city of New York, on the first Tuesday in May, in the year 1846, for the purpose of adopting some concerted action, to elevate the standard of Medical Education in the United States.

After some discussion, this Circular was referred to a Committee, consisting of Drs. Hale, J. V. C. Smith and Homans, to be reported upon at the next Council meeting.

Drs. Z. B. Adams, Homans, and Lewis, were appointed a Committee to report upon the expediency of altering the 37th By-law.

Drs. Jesse Merrill, of East Boston, and John McCrillis, of Lowell, were elected Fellows of the Society.

Dr. Thomas Chadbourne, of Concord, N. H., was chosen an honorary member of the Society.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER,
Recording Secretary.

FEBRUARY MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, February 4th, at 11 o'clock, A. M.

A letter was read from Dr. John O. Green, accepting the invitation of the Counsellors to deliver the next annual address before the Society.

The Committee, to whom was referred the communication from the Medical Society of the State of New York, presented their report, which was accepted, and the resolution accompanying it was adopted.

"That the Counsellors and Fellows of the Medical Society will ever receive with great respect and attention, any communication from so distinguished a body as the New York State Medical Society, and would gladly co-operate with their Society, in any efficient means for the benefit of the profession and the community. But the Committee have not been able to perceive in the proposed General Medical Convention, such a promise of good to be accomplished by it, as to induce them to recommend that our Society should take a part in it. Every measure, either of reform or improvement, must have reference to the actual condition of things in the community for which it is designed. This condition is very different in different parts of our country, so that one measure of improvement cannot be applicable to all; and it is better known to the several local medical institutions, than it possibly can be to any general convention. These local institutions either have, or in general they may have, the power to provide a remedy for existing evils, and to carry on and establish improvements; and to them, the Committee be-

lieve, we must look for the accomplishment of these objects.

The Committee therefore recommend that our Corresponding Secretary inform the New York State Medical Society, that the Counsellors respectfully decline sending delegates from the Massachusetts Medical Society, to the proposed Medical Convention, by transmitting a copy of this report to the Corresponding Secretary.

ENOCH HALE, } *Committee.*
JOHN HOMANS, }

Voted, That the Censors of the Sixth Medical District have authority to hold their meetings in Barnstable, on the first Wednesday in May and September, respectively, until the next revision of the By-laws.

The Committee appointed to report upon some proposed alterations of the By-laws, presented the following, which was accepted:

The Committee of the Counsellors chosen at the last meeting to consider and report upon the alterations requisite in the 37th by-law, beg leave to present the following

REPORT:

That long experience has proved to the Censors of the Society, and of the First Medical District, that in granting letters of approbation and license to persons, educated out of this Commonwealth, they have acted either without law, or contrary to the laws of this Society. In order, therefore, that the law and the practice in future may correspond, it has been proposed that the following alterations should be made in the 37th by-law. Your Committee therefore would recommend, that, instead of commencing, as it now does, with "Candidates for examination," the words "for letters of approbation, and license, or for," be inserted before the word examination; so that the By-law shall read as follows:

"Candidates for letters of approbation and license, or for examination," &c. Your Committee think the Counsellors will see, at a glance, the propriety of these alterations.

Again, as the law now stands, the Censors have found themselves frequently obliged to give letters of license to persons presenting diplomas, entirely satisfactory according to the law, but of very long standing. Now it would seem proper in all such cases that evidence should be presented to the Censors, that the persons so applying, should present evidence that they have continued to sustain the same literary and moral character, as when they received the diploma. For this purpose, therefore, your Committee recommend the following alteration in the same by-law, viz.: after the word "board," in the sixth line, that the following be inserted, "which application shall be accompanied by a certificate from some known and respectable person, acquainted with the applicant (unless he be personally known to some of the board to which he applies), that he is of fair standing in his profession, and of good moral character."

All which is respectfully submitted.

Z. B. ADAMS, *For the Committee.*

Dr. Lewis read a letter from Dr. J. A. Tarbell, applying for membership to the Society—and stating that he had great confidence in the efficacy of medicine, "especially when prepared and prescribed agreeably to the directions of Hahneman." This letter was referred to the Censors, with full power to settle the matter.

The Corresponding Secretary stated that a diversity of opinion existed in the minds of members as to the course necessary to be pursued to become a Fellow of the Society, as regards the signing of the By-laws, and wished that the subject might be examined and reported upon. Drs. Morrill,

Hale, and Lewis, were appointed a Committee to report upon this subject at the next meeting.

The resignation of Fellowship, of Drs. Noah Whitman, of North Bridgewater, J. D. Hedge, of Cambridge, and Isaac Hodges, of North Adams, was accepted by the Counsellors.

Voted, That Dr. H. P. Phillips, of North Adams, be allowed to resign his Fellowship, when he shall have paid his dues.

Drs. Z. B. Adams and Jeffries were appointed a Committee to examine the Treasurer's accounts.

Drs. Fisher and Thomas were appointed a Committee to examine the Library.

Drs. Abbott, Shurtleff, and Cabot, were appointed a Committee to furnish the members of the Society with vaccine virus at the next annual meeting.

Voted, To dissolve the meeting.

D. HUMPHREYS STORER, *Rec. Sec'ry.*

MAY MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Tuesday, May 28th, 1846, at 10 o'clock, A. M.

The records of the last meeting having been read, the Corresponding Secretary reported the names of the gentlemen, who have become members of the Society since the last stated meeting of the Counsellors.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Thomas, Gay, and Otis, were appointed Scrutineers.

The following gentlemen were chosen to the several offices.

JACOB BIGELOW, *President*; EDWARD FLINT, *Vice President*; D. HUMPHREYS STORER, *Corresponding Secretary*; WINSLOW LEWIS, *Recording Secretary*; ALEX. THOMAS, *Librarian*.

Dr. Lewis declined serving, and Dr. Putnam was elected Recording Secretary.

Upon motion of Dr. Hale, the thanks of the Counsellors were presented to Dr. Morrill, for his faithful and assiduous services in the various offices he has heretofore held.

CENSORS. *For the First Medical District, and the Society at large*, Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

For the Second Medical District, B. F. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

For the Third Medical District, David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, James Dean.

For the Fourth Medical District, Henry H. Childs, A. G. Welch, R. Worthington, N. S. Babbitt, G. Guiteau.

For the Fifth Medical District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth Medical District, Aaron Cornish, E. W. Carpenter, Thomas P. Jackson, George Atwood, J. Leonard, Jr.

The report of the Censors, for the First Medical District, and for the Society at large, was read and accepted.

Drs. Homans, Storer, and J. B. S. Jackson, were chosen Committee on Publications.

Drs. Gould, Lewis, and Otis, were chosen Committee on Resignations.

Dr. John Ware, of Boston, was chosen to deliver the next annual address.

The Committee to whom was referred the correspondence respecting the admission of members to the Massachusetts Medical Society, presented the following report, which was accepted:

"That the power conferred by the By-laws, on the Corresponding Secretary, and in certain cases upon the Counsellors, to admit members, is clearly restricted to the admission of such as are already Licentiates of the Society, or are entitled to the same privileges as Licentiates by having received a medical degree at one of the Colleges in the Commonwealth, Harvard University, and the Berkshire Medical Institution. The authority to examine the credentials of those, who have been educated and examined out of the State, is expressly granted, both by the Law of the Commonwealth, and the By-laws of the Society, to the Censors of the Society, and to them alone. The Counsellors, either individually, or as a board, have no power to interfere with it. They may elect Fellows to the Society, but they cannot control the duties of the Censors.

The proper course for a physician, educated and licensed elsewhere, who removes into the State, is plainly marked out by the By-laws. He presents his credentials either to the Censors for the Society at large, or to those of the District in which he proposes to reside; and if they are found to be satistactory in character, and from an institution that requires a medical education before examination equal to that demanded by this Society, he is licensed by them. He is thus entitled to all the privileges of a recognized practitioner of medicine in the Commonwealth, and may become a Fellow of this Society, or not, as he pleases. Until he has done this, he has no claim whatever to admission to the Society, and no officer of the Society has any authority to admit him. Nor is any Fellow of the Society authorized to consult with him, or in any way to "aid or abet" him as a regular practitioner of medicine.

This state of things is not peculiar to ourselves: some analogous provision is found in other States, and other countries, probably in every community, where there is a sufficient organization of medical men to enforce it. Even in general society a stranger, however elevated his station or worthy his character, is not expected to be received without a regular introduction. When the object of the stranger is to obtain a general confidence, it is not less for his advantage, than it is for the protection of the community he enters, that there should be a recognized tribunal authorized to receive him, and to certify conclusively the sufficiency of the evidence of his claims to confidence. Such a tribunal is our board of Censors; and the Committee are not able to perceive any just cause of offence in a provision so general and so necessary as the requirement of our By-laws in regard to it.

SAMUEL MORRILL,
ENOCH HALE,
WINSLOW LEWIS, Jr. } *Committee.*

The following gentlemen have become Fellows of the Society since the last meeting:

Isaac Colby, Salem; Elton R. Smilie, South Reading; Mortimer B. Tappan, Boston; Ebenezer C. Richardson, Ware; George Cutler, Charlestown; Albert A. Hassard, Boston; Kimball Hill, Boston; John B. Walker, Boston; Samuel Kneeland, Jr., Boston; Samuel F. Green, Worcester; John McCrillis, Lowell; Jesse Merrill, East Boston; George Moody, Georgetown; Henry A. Barrett, Concord; James A. Tenney, Worcester; Robert W. Newell, Boston; Samuel Merritt, Plymouth; James Hyndman, Boston; Robert White, Boston; John Bachelder, Sandwich; Jonathan Brown, Wilmington; Charles W. Calkins, Boston; George H. Lyman, Boston; Absalom P. King, Blackstone; Horace P. Wakefield, Reading; Charles W. Gleason, Braintree; Josiah Atkinson, Wrentham; Merrit F. Potter, Charlemont;

George W. Burdett, Lancaster; Josiah Ball, Fall River; George S. Jones, Boston; Samuel Hamblen, Boston; Nathaniel Downes, Boston; Hiram Houlton, Truro; Henry Wigand, Salem; Elbridge K. Mitchell, West Newton; James H. Trask, Boston; Thomas L. Chapman, Longmeadow; Charles A. Proctor, Lunenburg; Eleazer P. Wells, Boston; Eugene E. Braun, Charlestown; Elie Laceste, Boston; Louis L. L. Desaulniers, South Boston; Pierre B. Mignault, Boston; Samuel F. Green, Worcester; G. Washington Doane, Hyannis; William W. Billings, Springfield; Moses C. Greene, Boston; Samuel F. Dickinson, Pittsfield; Royal Sibley, Warren; John Little, Lowell; Joel Spalding, Lowell; E. Whitney Blake, Boston; Moses P. Greenleaf, Newton; Joseph Hagar, East Boston; Joseph E. Bartlett, Somerville; Henry Orne White, Salem; Walter H. Kimball, Andover; Walter C. Chandler, South Natick; Luther B. Morse, Lowell; George H. Whitmore, Roxbury; Andrew D. Blanchard, Medford; Nathan B. Edwards, Chelmsford; Adino B. Hall, Kingston; James L. Wellington, Swansea.

Voted, That the Treasurer take the necessary measures to collect all assessments of more than three years standing, except in cases where he has reason to believe the delinquent is unable to pay them; and in such cases that he be authorized, with the concurrence of the President, to remit the whole or part thereof.

Drs. Hale, Alden, and Townsend, were appointed a Committee to revise the By-laws of the Society, preparatory to a new edition.

Voted, That one copy of all the publications of the Society be allowed a general circulation among its members.

Dr. Henry Holland, of London, was elected an honorary member of the Society.

Dr. Morrill Robinson, of Middleboro', was elected a Fellow.

The Treasurer, in obedience to the XXIIId order of the Society, reported the names of all delinquent members from whom assessments are due for four or more years.

C. G. PUTNAM,
Recording Secretary.

Officers of the Massachusetts Medical Society.

ELECTED MAY, 1846.

JACOB BIGELOW, *President.*

EDWARD FLINT, *Vice President.*

D. H. STORER, *Corresponding Secretary.*

C. G. PUTNAM, *Recording Secretary.*

AUGUSTUS A. GOULD, *Treasurer.*

ALEXANDER THOMAS, *Librarian.*

CENSORS. *For the Society at large, and the First Medical District*, Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, J. B. S. Jackson.

For the Second District, B. F. Heywood, William Workman, Benjamin Pond, Joseph Sargent, John G. Metcalf.

For the Third District, David Bemis, Jehiel Abbott, Addison S. Peck, Daniel Thompson, James Dean.

For the Fourth District, Henry H. Childs, A. G. Welch, R. Worthington, N. S. Babbitt, G. Guiteau.

For the Fifth District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth District, Aaron Cornish, E. W. Carpenter, Thomas P. Jackson, George Atwood, J. Leonard, Jr.

Committee on Publications, Drs. Homans, Storer, and J. B. S. Jackson.

Committee on Resignations, Drs. Gould, Lewis, and Otis.

Dr. John Ware, of Boston, was chosen to deliver the next annual address.

Officers of District Medical Societies.

Essex Southern District Society. A. L. Peirson, *President.* George Choate, *Vice President.* Joseph Farnum, *Treasurer.* E. B. Peirson, *Librarian.* Wm. Mack, *Secretary.*

Berkshire District Society. Royal Fowler, *President.* M. L. Sabin, *Vice President.* C. Guiteau, *Secretary.* Selden Jennings, *Treasurer, Librarian* and *Cabinet Keeper.*

Hampshire District Society. Daniel Thompson, *President,* E. G. Ufford, *Vice President.* J. W. Smith, *Secretary.* C. A. Hall, *Treasurer.* James Thompson, *Librarian.*

Southern District Society. Alexander Read, *President.* John Perkins, James Haskell, *Vice Presidents.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Barnstable District Society. Aaron Cornish, *President.* John Harpur, *Vice President.* Thomas P. Jackson, *Secretary.* E. W. Carpenter, *Treasurer.* Alexander Poole, *Librarian.*

Hampden District Society. William Bridgman, *President.* J. G. Holland, *Secretary, Treasurer* and *Librarian.*

Essex North District. George Cogswell, *President.* Benjamin Atkinson, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

Middlesex District Society. Nehemiah Cutter, *President.* Elisha Huntington, *Vice President.* John D. Pillsbury, *Secretary.* Jeremiah P. Jewett, *Treasurer.* Isaac W. Scribner, *Librarian.*

APPENDIX.

1847.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

THE Annual Meeting of the MASSACHUSETTS MEDICAL SOCIETY was held on Wednesday, May 26th, at the Masonic Temple, at 10 o'clock, A. M.

The records of the last meeting of the Society, and of the several meetings of the Counsellors, were read.

Voted, To proceed to the choice of Counsellors.

Drs. Cutter, of Pepperell, Hooker, of East Cambridge, Hosmer, of Watertown, Gordon, of Boston, Z. B. Adams, of Boston, and Green, of Lowell, were appointed a Committee to collect and count the ballots.

The report of the Standing Committee, to ascertain the proper apportionment of Counsellors, was read, and it was voted to apportion according to the principle of allowing one for every eight Fellows, and one for every successive 4-8ths in each District or County.

The report of the Treasurer, on the annual receipts and expenditures of the Society, and likewise the report of the

Auditing Committee, were read and accepted; from which it appeared, that the receipts, during the year ending May 26th, 1847 were, - - - - - $1997 79
The expenditures were, - - - 1797 12

Leaving a balance of - - - $200 67

The amount of the Permanent Fund, which is invested in the Massachusetts Hospital Life Insurance Company, is $9721 02.

The report of the Committee on the Library was read and accepted.

The report of the Committee on the revision of the By-laws, preparatory to a new edition, which was presented at the February meeting of the Counsellors, and by them referred to the Society, and to which the following resolution was appended, was read and accepted :—

Resolved, That the Counsellors recommend to the Society, at the next Annual Meeting, to amend the By-Laws, as follows:

1. To alter the 8th By-law at the beginning, so that it may read as follows:

VIII. Any fellow or retired member may be expelled from the Society, by a vote of two-thirds of the members present at any annual meeting, upon charges of the following description; provided that the charge or charges against him have first been considered by the Counsellors, and been brought forward by them,—or have been made before the Society at a preceding annual meeting, &c.

2. To alter the 9th and 10th By-laws, to read as follows:

IX. Any person who is engaged in the practice of medicine or surgery in this Commonwealth, not being a fellow or retired member or licentiate of this Society, nor a Doctor of medicine of Harvard University, or of the Berkshire Medical

Institution, shall be deemed, by the fellows of this Society, an irregular practitioner; likewise any one who has been expelled from this Society, or who has withdrawn himself from it without the permission of the Counsellors, and any licentiate or doctor of medicine, not a fellow, who has been deprived of his privileges by vote of the Society; and it shall be unlawful for any fellow or retired member of this Society, in his professional capacity, to advise or consult with any such irregular practitioner, or in any way to abet or assist him as a practitioner of medicine or surgery. For any breach of this By-law, a fellow or retired member of the Society shall be disqualified for one year from giving his vote at any meeting of the Society, and of the District Society of which he may be a member; he shall also be liable to the censure and reprimand of the Counsellors, and in aggravated cases to expulsion.

X. If any fellow or retired member of this Society shall recommend by public advertisement, or advertise for sale any medicine the composition of which he keeps a secret, or shall in like manner offer to cure any disease by any such secret medicine, or by any secret process, he shall be liable to expulsion, or to such other penalty as the Society at the Annual Meeting may think proper to inflict. If any licentiate of the Society, or Doctor of medicine of Harvard University, or the Berkshire Medical Institution, not a fellow, shall violate either this or the preceding By-law, he shall be liable to be deprived of the privileges of a licentiate, and to be declared an irregular practitioner.

3. To substitute the following addition to the 13th By-law, in place of that which was adopted at the last Annual Meeting.

Any fellow, who shall be appointed, either by the Society or the Counsellors, on a Committee to report to the Counsellors, shall be authorized to attend any meeting of the Coun-

sellors, at which the report of such Committee is acted on, and to take part in the discussion of it, until it is definitively disposed of.

4. To strike out of the 14th By-law the words, 'as designated in the act of the Commonwealth of February 19, 1819, entitled an act in addition to an act, entitled an act regulating the practice of Physic and Surgery,' and insert in their place the words, 'The First Medical District shall include the counties of Suffolk, Essex, Middlesex, Norfolk, and Nantucket; the second district shall include the county of Worcester; the third district shall include the counties of Hampshire, Franklin, and Hampden; the fourth district shall include the county of Berkshire; the fifth district shall include the counties of Bristol, Plymouth, and Dukes County; and the sixth district shall include the county of Barnstable.'

5. To insert in the 29th By-law the following words: 'The Censors of the fifth Medical District at New Bedford, on the second Wednesday in May; the Censors of the sixth district, at on

6. To alter the closing sentence of the 36th By-law, so as to read—'the second section of the preceding By-law.'

7. To strike out of the 40th By-law the words, 'agreeably to the second section of the law of this Commonwealth, passed February 19, 1819, entitled an act, in addition to an act regulating the practice of Physic and Surgery,' and insert the words, 'in accordance with the provisions of the Revised Statutes, Chap. II, Section 7.'

8. To strike out of the 40th By-law, the words, 'or read the books required by this Society to be read by medical students.'

9. In the 42d By-law, to erase the word 'now' in the 8th line of page 47.

10. To repeal the 56th, 57th and 58th By-laws.

The motion of Dr. John Ware, made at the February meeting of the Counsellors, 'That the Counsellors recommend to the Society an amendment of the By-laws, so as to provide that the Annual Meeting of the Society shall be held out of the city of Boston, whenever the Society shall so direct by a special vote to that effect,' was read and rejected.

On motion of Dr. John Flint, the above vote was reconsidered, and finally the amendment proposed by Dr. Ware was accepted.

The Committee, appointed to collect and count the votes, reported the following Fellows, as having been elected Counsellors:

Essex South District Medical Society. Drs. A. L. Peirson, Samuel Johnson, George Choate, Abraham Gould, Asa Story, Benjamin Cox, William Mack.

Essex North District Medical Society. Drs. Jeremiah Spofford, John Appleton, Richard Herbert.

Worcester District Medical Society. Drs. S. Bachelder, J. Green, E. Flint, B. F. Heywood, C. W. Wilder, J. G. Metcalf, P. T. Kendall, J. Stone, W. Workman, D. S. C. H. Smith, T. R. Boutelle.

Berkshire District Medical Society. Drs. Royal Fowler, H. H. Childs, A. G. Welsh, Robert Worthington.

Hampshire District Medical Society. Drs. Atherton Clark, Hervey Orcutt, C. A. Hall, Artemas Bell.

Southern District Medical Society. Drs. Paul Spooner, Alexander Read, John Perkins, Perez F. Doggett, Le Roy M. Yale.

Barnstable District Medical Society. Drs. Aaron Cornish, E. W. Carpenter, Thomas P. Jackson.

Hampden District Medical Society. Drs. William Bridgman, David Bemis, James M. Smith, Alvan Smith.

Middlesex District Medical Society. Drs. N. Cutter, E. Huntington, J. C. Dalton, H. Pillsbury, G. Kimball, J. W. Graves, A. B. Bancroft, Josiah Bartlett.

Bristol County. Drs. Caleb Swan, M. R. Randall.

Franklin County. Drs. Stephen W. Williams, Christopher Dean, James Deane.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County. Drs. Ezekiel Thaxter, Paul L. Nichols, Winslow Warren.

Middlesex County. Drs. T. Wellington, Z. Howe, J. C. Dalton, J. Bartlett, J. O. Green, A. Hooker, J. S. Hurd, C. F. Chaplin, S. Whitney, H. Adams, H. Hosmer, L. V. Bell, J. W. Bemis, Morrill Wyman.

Norfolk County. Drs. Robert Thaxter, J. Stimson, Ebenezer Alden, Ebenezer Stone, Henry Bartlett, A. Howe, Jonathan Ware.

Suffolk County. Drs. G. C. Shattuck, Z. B. Adams, J. Jeffries, W. Strong, W. J. Walker, S. Morrill, W. Lewis, Jr., J. V. C. Smith, G. W. Otis, Jr., D. H. Storer, J. Flint, C. H. Stedman, D. Harwood, W. G. Hanaford, H. B. C. Greene, J. B. S. Jackson, Alexander Thomas, E. Palmer, Jr., M. S. Perry, J. Odin, Jr., Geo. Bartlett, Martin Gay, H. G. Clark, H. I. Bowditch, H. Dupee, Henry Dyer.

At one o'clock the Annual Address was read by John Ware, M. D., of Boston.

On motion of Dr. John Homans, the thanks of the Society were presented to Dr. John Ware, for his able, candid, and interesting discourse.

Voted, To dissolve the meeting.

The Fellows of the Society then proceeded to Faneuil Hall, and dined together.

C. G. PUTNAM, *Recording Secretary.*

Proceedings of the Counsellors.

OCTOBER MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, October 7th, 1846, at 11 o'clock, A. M.

A letter was read from Messrs. Wiley and Putnam, in behalf of the British Museum, requesting a copy of the Society's Publications. Whereupon it was,

Voted, That the Librarian collect and cause to be bound as complete a set as possible, to be presented to that Institution.

Voted, To dissolve the meeting.

C. G. PUTNAM, *Recording Secretary.*

FEBRUARY MEETING, 1846.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Wednesday, February 3, 1847, at 11 o'clock, A. M.

The Committee on Revision of the By-laws made a report, recommending several alterations; referred to the Society.

The Committee, appointed to consider what are the relations to the Society of those Fellows who have removed out of the State, recommended to the Counsellors the passage of the following resolution, which was adopted.

Resolved, 'That it is competent for any Fellow of this Society, who has paid his annual assessments, on removing to another State, to retain his Fellowship in the Massachusetts Medical Society.'

A. L. PEIRSON,
ENOCH HALE,
JOHN HOMANS,
} *Committee.*

A letter was received from Dr. Henry Holland of London, signifying his acceptance of Honorary Membership of the Society.

Letters were received from Dr. Greene, of North Falmouth, on Statistics, and from Dr. Williams, of Deerfield, on the appointment of delegates to the Medical Convention, to be held in Philadelphia, in May next.

Voted, To send delegates to the Medical Convention; ten from the Society at large, and one from each district.

The following gentlemen were nominated by the President, and accepted by the Counsellors:

From the Society at large. Drs. Williams, of Deerfield, Hale, of Boston, Huntington, of Lowell, Fowler, of Stockbridge, Peirson, of Salem, Smith of Boston, Sargent of Worcester, Z. B. Adams, of Boston, Holmes, of Boston, and G. C. Shattuck, Jr., of Boston.

From the Medical Districts. Drs. Bartlett, of New Bedford, Carpenter, of Chatham, and W. Bridgman, of Springfield.

A certified copy of a petition of the Berkshire Medical District Society, addressed to the Legislature, having been read,

Voted, That a Committee be appointed to report upon the subject of the petition.

Voted, That the President, and Drs. Hale, and Hayward, be this Committee.

It was moved by the President, that when the permanent fund of the Society shall amount to ten thousand dollars, the

interest or income of said fund shall be devoted to the publication of a Journal, to be issued one or more times in a year, consisting chiefly of such selected articles as may be adapted to convey a knowledge of the progress of Medical Science; and containing also the proceedings and customary publications of the Society, for the current year—said Journal to be under the charge of the Publishing Committee.

Voted, That the motion be referred to the Committee on Publications.

On motion of Dr. John Ware, it was

Voted, That a copy of Copland's Dictionary, procured by the Society for distribution among its Fellows, be transmitted to Dr. Copland.

On motion of Dr. John Ware, it was

Voted, That the Counsellors recommend to the Society to amend the By-laws, so as to provide that the Annual Meeting shall be held out of the city of Boston, whenever the Society shall so direct by a special vote to that effect, by inserting in the first By-law, at the end of the fifth line, the words, 'unless the Society shall by a vote, at the preceding Annual Meeting, appoint some other place of meeting;' and in the eleventh By-law, in the fourth line, the words, 'either in Boston or.'

On motion of Dr. Hale, it was

Voted, That the Corresponding and Recording Secretaries, together with the Treasurer and Librarian, be a Committee, to report a plan for the more secure preservation of the Society's books and papers.

A communication was received from the Librarian, stating that he had been unable to form a sufficiently complete set of the Transactions of the Society for presentation to the British Museum.

Voted, To dissolve the meeting.

C. G. PUTNAM, *Recording Secretary.*

MAY MEETING, 1847.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, Masonic Temple, Tremont street, on Thursday, May 27th, 1847, at 10 o'clock, A. M.

The records of the Annual Meeting of the Society, and of the last meeting of the Counsellors, were read.

The report of the Censors for the First Medical District, and the Society at large, was read.

The Committee on Publications, to which was referred the motion made at the meeting of the Counsellors in February, in regard to the publication of a Journal, offered a report, with the following resolutions, which were read and accepted.

Resolved, That from and after the first day of January next, the Committee on Publications be authorized, in lieu of the 'Medical Communications,' and the 'Library of Practical Medicine,' to issue a quarterly publication, to be called, 'The Journal of Practical Medicine of the Massachusetts Medical Society,' in which shall be published the proceedings of the Society, and of the Counsellors, and the Annual Discourse, unless otherwise ordered, and such original communications as the Committee, or the editor employed by them, shall approve; but whose main design shall be to furnish to the members of the Society a succession of valuable essays in practical medicine, selected from the best foreign journals; it being understood that the Committee shall be at liberty to republish, or procure at their discretion, any entire works of suitable extent, either as a part of said Journal, or as a substitute for a portion of it, whenever they shall judge it expedient; and the Committee shall be authorized to appoint one of their own number, or some other suitable person, to act as the editor of the proposed Journal, under their supervision

and direction, and to assign to him such moderate compensation as the means of the Society, and the duties to be performed, may render proper: provided that the whole expense of said Journal shall not exceed fifteen hundred dollars a year.

Resolved, That the Journal be distributed gratuitously, one copy to each retired member, and one copy to each Fellow of the Society, from whom no more than one assessment shall have been due at the next preceding Annual Meeting in each year; provided, that new members shall not be entitled to it, until the first day of January subsequent to the time when they become Fellows.

Resolved, That the Permanent Fund of the Society shall be fixed at ten thousand dollars, and any surplus exceeding that amount, and the annual income of the fund, shall be appropriated to the support of the 'Quarterly Medical Journal,' and the balance of the cost of said Journal shall be provided for out of the ordinary income of the Society.

Voted, To proceed to the choice of officers for the ensuing year.

Drs. Henry I. Bowditch, of Boston, and Anson Hooker, of Cambridge, were appointed a Committee to collect, sort, and count the votes.

The following gentlemen were elected to the several offices:

Zadok Howe, of Billerica, *President;* Edward Flint, of Leicester, *Vice President;* John B. S. Jackson, of Boston, *Corresponding Secretary;* Alex. Thomas, of Boston, *Recording Secretary;* Zabdiel B. Adams, of Boston, *Treasurer;* Martin Gay, of Boston, *Librarian.*

Censors. *For the First Medical District, and the Society at large*, Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John D. Fisher, John B. S. Jackson.

For the Second Medical District, Drs. Benjamin F. Heywood, Benjamin Pond, William Workman, Joseph Sargent, John G. Metcalf.

For the Third Medical District, Drs. David Bemis, Jehiel Abbott, Edward G. Ufford, Samuel B. Woodward, James Deane.

For the Fourth Medical District, Drs. Henry H. Childs, Asa G. Welsh, Robert Worthington, Nathan S. Babbitt, Corridon Guiteau.

For the Fifth Medical District, Drs. Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth Medical District, Drs. Aaron Cornish, Elijah W. Carpenter, Thomas P. Jackson, George Atwood, Jonathan Leonard. Jr.

Committee on Publications, Drs. John B. S. Jackson, D. Humphreys Storer, Oliver W. Holmes.

Committee on Resignations, Drs. Zabdiel B. Adams, Winslow Lewis, George W. Otis.

Dr. Luther V. Bell, of Somerville, was chosen to deliver the next annual discourse.

On motion of Dr. Samuel Morrill, of Boston, it was

Voted, That the thanks of the Counsellors be presented to Jacob Bigelow, M. D., their late President, for the uniformly courteous, able, and impartial manner, in which he has presided over their deliberations.

The following gentlemen have become retired Members of the Society, since the last Annual Meeting: Christopher Deane, of Colerain, John Smith, of Wales, Calvin Briggs, of Marblehead.

The following gentlemen have become Fellows of the Society since the last Annual Meeting.

By Election. William Comstock, of Boston; Nathan Adams of Springfield; P. L. B. Stickney of West Springfield.

By signing the By-laws in course. Horace Stacy, Boston; Samuel H. Gould, Brewster; Daniel V. Folts, Boston; Henry A. Gerry, Townsend; David M. Parker, Boston; William R. Lawrence, Boston; Daniel Holt, Lowell; David Gill, Jr., Marblehead; Thomas J. W. Kennedy, Boston; John B. Alley, Boston; Hiram L. Chase, Boston; John A. Tarbell, Boston; E. A. W. Harlow, Cambridge; G. A. Warren, Boston; H. Osgood Stone, Boston; Joseph C. Sanborn, Reading; George W. Denison, Springfield; Charles D. Cleveland, Boston; Samuel F. Avery, Charlemont; H. D. Train, Medford; William D. Lamb, Lawrence; Edward Stimson, Boston: Henry Bryant, Boston; Rufus Shackford, Lowell; D. D. Smith, Gloucester; F. S. Ainsworth, Boston; Horace Wason, Manchester; Edward H. Clarke, Boston; John Hartwell, Boston; Robert Dixon, Boston; Daniel L. Gibbens, Jr., Weymouth; Ira W. Tobie, Boston; William B. Bugbee, Quincy; Joseph Underwood, Charlestown; James F. Harlow, Cambridge; Dennis McGowan, Boston; Robert C. Rees, Boston; M. Aurelius Moore, Boston; Charles Eastham, Boston; John W. Hinckley, Boston; Daniel Chaplin, Cambridge; John J. McGowan, Boston; B. V. Gersdoff, Boston; Maurice O. H. Reedy, Boston; Benjamin F. Wing, Boston; Benjamin Cushing, Dorchester; Washington Ayer, Lawrence; William F. Channing, Boston; Levi Goodenough, Sudbury; Charles F. Heywood, Boston; Francis Collamore, Braintree; Charles Gibbs, Lawrence.

A. THOMAS, *Recording Secretary.*

Officers of the Massachusetts Medical Society,

ELECTED MAY, 1847.

ZADOK HOWE, *President.*
EDWARD FLINT, *Vice President.*
JOHN B. S. JACKSON, *Corresponding Secretary.*
ALEX. THOMAS, *Recording Secretary.*
ZABDIEL B. ADAMS, *Treasurer.*
MARTIN GAY, *Librarian.*

CENSORS. *For the Society at large, and the First Medical District,* Drs. George W. Otis, Jr., Winslow Lewis, Jr., Anson Hooker, John B. S. Jackson, John D. Fisher.

For the Second District, Benj. F. Heywood, Benjamin Pond, William Workman, Joseph Sargent, John G. Metcalf.

For the Third District, David Bemis, Jehiel Abbott, Edward G. Ufford, Samuel B. Woodward, James Deane.

For the Fourth District, Henry H. Childs, Asa G. Welsh, Robert Worthington, Nathan S. Babbitt, Corridon Guiteau.

For the Fifth District, Alexander Read, Andrew Mackie, Joseph Haskell, Samuel Sawyer, Thomas Wilbur.

For the Sixth District, Aaron Cornish, Elijah W. Carpenter, Thomas P. Jackson, George Atwood, Jonathan Leonard, Jr.

Committee on Publications, Drs. John B. S. Jackson, D. Humphreys Storer, Oliver W. Holmes.

Committee on Resignations, Drs. Zabdiel B. Adams, Winslow Lewis, Jr , George W. Otis, Jr.

Dr. Luther V. Bell, of Somerville, was chosen to deliver the next annual address.

Officers of District Medical Societies.

ELECTED 1847.

Barnstable District Society. John Harpur, *President.* Jonathan Leonard, Jr., *Vice President.* Thomas P. Jackson, *Secretary.* Elijah W. Carpenter, *Treasurer.* Alexander Poole, *Librarian.*

Berkshire District Society. No return.

Essex North District Society. Benjamin Atkinson, *President.* David Mighill, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

Essex South District Society. Abel L. Peirson, *President.* George Choate, *Vice President.* Joseph Farnum, *Treasurer.* Edward B. Peirson, *Librarian.* William Mack, *Secretary.*

Hampden District Society. William Bridgman, *President.* Thomas L. Chapman, *Secretary, Librarian* and *Treasurer.*

Hampshire District Society. Daniel Thompson, *President.* Edward G. Ufford, *Vice President.* J. W. Smith, *Secretary.* Charles A. Hall, *Treasurer.* James Thompson, *Librarian.*

Middlesex District Society. Nehemiah Cutter, *President,* Elisha Huntington, *Vice President.* John D. Pillsbury, *Secretary.* Jeremiah P. Jewett, *Treasurer.* Isaac W. Scribner, *Librarian.*

Southern District Society. Andrew Mackie, *President.* John Perkins, *Vice President.* Joseph Haskell, 2d *Vice President.* Samuel Sawyer, *Secretary.* Clement F. Shiverick, *Treasurer* and *Librarian.*

Worcester District Society. No return.

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APPENDIX.

1848.

PROCEEDINGS OF THE MASSACHUSETTS MEDICAL SOCIETY.

ANNUAL MEETING.

The Annual Meeting of the Massachusetts Medical Society was held at the Masonic Temple, Tremont Street, Boston, on Wednesday, the 31st of May, A. D. 1848.

The records of the proceedings of the Society, at its last Annual Meeting, and the records of the Counsellors' Meetings, during the past year, were read.

Voted, to proceed to the choice of Counsellors.

Drs. Adams, of Waltham, Dale, of Boston, Jarvis, of Dorchester, Bemis, of Charlestown, and Graves, of Lowell, were appointed a Committee to collect, count, and assort the votes; to this committee were subsequently added Drs. Alden, Bowditch, Nelson, Gould, and Hill.

The report of the Committee on the apportionment of Counsellors, was read and accepted. The report on the Treasurer's account, and upon the permanent fund of the Society, was read and accepted; from which it appears that

The receipts of the year have been	$1351 87
Expenditures during the year,	1138 01
Leaving a balance of	$213 86

The permanent fund, which is in the Hospital Life Insurance Company, is, to 1st January, 1848, $10,207 07

The report of the Committee on the Library was read and accepted.

The application of the Censors of the Sixth Medical District, to alter the time of the meeting of the board, which had been presented to the Counsellors, and by them referred to the Society, was received; and thereupon it was voted: To amend By-law XXIX., by filling the blank with the words, "the first Tuesday of May and September."

The Committee to collect count and assort the votes for Counsellors reported the following gentlemen as having been chosen:

Essex South District Society. Drs. A. L. Peirson, George Choate, A. Story, J. Lamson, Samuel Johnson, A. Gould, E. Hunt, E. S. Phelps.

Essex North District Society. Drs. Rufus Longley, R. S. Spofford, Richard Herbert.

Worcester District Society. Drs. S. Batchelder, E. Flint, C. W. Wilder, P. T. Kendall, Benjamin Pond, J. Green, B. F. Haywood, J. G. Metcalf, J. Stone, T. R. Boutelle, C. C. Field.

Berkshire District Society. Drs. Royal Fowler, Asa G. Welch, Henry H. Childs, Selden Jennings.

Hampshire District Society. Drs. E. G. Ufford, D. Thompson, A. S. Peck, C. A. Hall.

Southern District Society. Drs. W. C. Whittredge, Samuel Sawyer, Foster Hooper, Andrew Mackie, Joseph Haskell.

Barnstable District Society. Drs. Aaron Cornish, Alexander Poole, Samuel H. Gould, Jonathan Leonard, Jr.

Hampden District Society. Drs. Jesse W. Rice, Cyrus Bell, Nathan Adams, Thomas L. Chapman.

Middlesex District Society. Drs. John C. Dalton, Nehemiah Cutter, G. Kimball, A. B. Bancroft, E. Huntington, H. Pillsbury, J. W. Graves, Josiah Bartlett.

Franklin County. Drs. S. W. Williams, James Deane, George W. Hamilton.

Middlesex County. Drs. T. Wellington, John Ware, Morrill Wyman, J. S. Hurd, Zadock Stone, Anson Hooker, J. M. Whittemore, C. F. Chaplin, Benjamin Cutter, J. W. Bemis, L. V. Bell, H. Adams.

Norfolk County. Drs. J. Stimpson, E. Alden, E. Stone, E. Jarvis, A. Stone, J. Ware, H. Bartlett, E. Woodward.

Nantucket County. Dr. Elisha P. Fearing.

Plymouth County. Drs. Ezek. Thaxter, P. L. Nichols, Winslow Warren.

Bristol County. Drs. Caleb Swan, Johnson Gardner.

Suffolk County. Drs. George C. Shattuck, Ephraim Buck, John Homans, Z. B. Adams, John Jeffries, Winslow Lewis, John Flint, Samuel Morrill, J. D. Fisher, A. A. Watson, George Bartlett, Daniel Harwood, Martin Gay, C. H. Stedman, Jacob Bigelow, George Hayward, S. D. Townsend, J. V. C. Smith, George W. Otis, J. C. Hayden, D. H. Storer, Alexander Thomas, C. G. Putnam, M. S. Perry, Ezra Palmer, A. A. Gould, Henry Dyer, J. B. S. Jackson, H. G. Clark.

At one o'clock the Annual Discourse was read by Dr. Luther V. Bell, of Somerville.

On motion of Dr. Walker, of Boston, it was voted: "That the grateful thanks of this Society be presented to Dr. Bell, for a Dissertation which does great honor to the Society, and at the same time, ample justice to the philanthropy, eminent talents, and great acquirements of its estimable author."

On motion of Dr. Warren, of Boston, it was voted: That a Committe of one from each county, be appointed to welcome the members of the American Medical Association at their next Annual Meeting, which is to be held at Boston, in May, 1849.

The report of the Committee upon proposed alterations in the Charter and By-laws of the Society, which at the last meeting of the Counsellors was referred to the Society, was read and accepted.

Upon motion of Dr. John Ware, it was voted: That, in the opinion of this meeting, the alterations proposed in the report of the Committee appointed, by the Counsellors, 2d Feb. 1848, will conduce to the harmony and promote the usefulness of the Society.

Voted: That the report under the direction of the Counsellors, be sent, as soon as practicable, to the Fellows, in the manner recommended by the Committee, and that they be requested to return an answer to the Corresponding Secretary within one month.

Voted: That if it shall appear, on the examination of the returns, that a majority of the Fellows have returned an affirmative answer to all, or any of the proposed articles, that they shall then be considered as accepted by the Society, and the President shall give notice (public) to that effect, in such manner as the Committee may direct.

Voted: That in case of the acceptance of the propositions, or any of them, that the President be requested to call a special meeting of the Counsellors, for the purpose of taking such measures as may be necessary to carry them into effect.

A communication respecting a Sanitary Survey of the state, which at their last meeting the Counsellors had referred to the Society, was read, and on motion of Dr. Bowditch of Boston, it was voted:

That it be referred back to the Counsellors, and that they be authorized to pursue such a course of action thereon, as the nature of the communication may require.

On motion of Dr. Bartlett, of Concord, a Committee to nominate gentlemen to compose the committee required by the passage of the vote offered by Dr. Warren respecting the reception of the Members of the American Medical Association, was appointed, which consisted of

Dr. Z. B. Adams, of Boston.
" A. R. Thompson, of Charlestown.
" Morrill Wyman, of Cambridge.

As this Committee was not able at once to report, it was voted: That their report be presented to the Counsellors at their meeting to be holden on Thursday, the 1st day of June, A. D. 1848.

The Society dined together at Assembly Hall, Albany Street, three hundred and eighty-six members being present.

Proceedings of the Counsellors.

OCTOBER MEETING, 1847.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, in Tremont Street, Boston, on the sixth day of October, Anno Domini 1847, at 11 o'clock, A. M.

The records of the last meeting of the Counsellors was read.

Dr. Peirson of Salem, presented the following report, with the resolutions thereto appended, in behalf of the delegates appointed by the Counsellors at their stated meeting in February, 1847, "to attend the Medical Convention to be held in Philadelphia, in May, 1847."

The delegates appointed to attend the National Medical Convention, held in May last, at Philadelphia, feel it to be their duty to make a brief report. Perhaps this would not have been considered necessary, were it not that the doings of that Convention refer to certain acts of coöperation on the part of the different institutions, whose delegates composed the Convention.

The subject of medical reform has long engaged the attention of many distinguished medical men in our country, but nothing very effectual had been attempted, until the meeting of the preliminary Convention held at New York, in 1846, at which committees were appointed to make reports on subjects regarded as the most important to the well-being of the community, as well as to our profession throughout the country.

The printed and widely circulated reports of the late Convention at Philadelphia, display an acknowledged ability in treating these several subjects, and it only remains for individuals and Medical Institutions throughout our country, who are sincerely desirous to endeavor to elevate the Medical character, to coöperate heartily with the measures proposed at that Convention. The only power of this Convention consisted in faithfully representing the public opinion of the medical fraternity. It did not assume any power of coercion. Its resolutions were mainly recommendatory, but it is hoped that upon examination, the measures proposed will be considered of much

general utility; that they will commend themselves to the favorable opinion of the profession at large.

The spirit which animated this Convention may be inferred from the fact that it consisted of more than two hundred individuals, delegated by the incorporated Medical Institutions of twenty-three States, some of whom came from a distance of nearly a thousand miles, at their own expense. The character of such a body may well command the respect of their medical brethren, throughout the Union.

The practical results of its recommendations remain to be seen. In the preparation of the Reports, which were presented and received the action of the Convention, it is evident that much careful thought was bestowed upon the subjects treated, and we believe that the doings of the Convention will be read with interest, and will tend to promote the welfare of the community, and elevate the character of the medical profession.

With these views, the delegates of the Mass. Medical Society to the late Medical Convention at Philadelphia, recommend the following resolutions:

1st. *Resolved*, That the Counsellors of the Mass. Medical Society cordially approve of the formation of the "American Medical Association."

2nd. *Resolved*, That delegates be appointed to attend the next meeting of the "American Medical Association."

3d. *Resolved*, That a Committee be appointed at this meeting, to ascertain the number of delegates to which this society is entitled, to nominate a list of the same, and to report at the next stated meeting of the Counsellors.

In behalf of the delegates, { A. L. Peirson, Z. B. Adams.

The Report was accepted.

On motion, the three Resolutions were severally adopted.

Dr. George C. Shattuck, of Boston,
" John O. Greene, of Lowell,
" Josiah Bartlett, of Concord,

were appointed the Committee required by the passage of the last Resolution.

The Corresponding Secretary reported the following list of gentlemen, who had become members of the Society, by signing the By-Laws.

James M. Cummings, Salem.
George Jewett.
Joseph B. Walker, E. Stoughton.
Patrick E. Molloy, Boston.
George W. Huntington, Pittsfield.
Thomas B. Wales, Roxbury.
Shelometh S. Whipple, Boston.
Charles H. Vincent, Ashfield.
Daniel B. Plimpton, N. Oxford.
Albion P. Chase, S. Abington.
Robert P. Davis, Boston.
George F. Bigelow, Boston.
James W. Stone, Boston.

The Committee on Resignations reported that Dr. Robert Thaxter, of Dorchester, be allowed at his own request to become a retired member of the society.

This Report was accepted.

Letters were received from Drs. Delano, Peirce and R. L. Hawes, each expressing a desire to retire from the Society, which, on motion, were referred to the Committee on Resignations.

A letter was received from Dr. E. K. Hunt, clerk of the Hartford Co. Medical Society, to ascertain "whether any arrangement can be made with our Society, by which the members of the Medical Society of the State of Connecticut may participate in the advantages which the circulation of the Annual Publication of the Mass. Medical Society affords."

This letter was referred to the Committee on Publications.

It was moved by Dr. Peirson, of Salem, that in consequence of the condition of the treasury, the publication of a Quarterly Journal, for which provision was made at the last stated meeting of the Counsellors by the acceptance of the report of the Committee on Publications, to which that subject had been referred, be postponed for one year.

Dr. Adams, of Boston, moved to strike out the words "for one year," and the motion thus amended was adopted.

On motion of the Treasurer, it was voted: "That the Treasurer be allowed to borrow a sum not exceeding four hundred dollars, in anticipation of the Revenue."

An application was received from Dr. Carpenter, in behalf of the Board (sixth) of Censors, requesting permission to change their days of meeting from the first Wednesday of each May and September, to the first Tuesday of each May and September.

Whereupon, on motion of Dr. Metcalf, of Mendon, it was voted: That the Counsellors recommend to the Society at their next Annual Meeting so to alter the 29th By-Law of the Society as to allow of the desired change.

Dr. Childs, of Pittsfield, presented the following Preamble and Resolve:

Whereas the great object of Medical Association is the advancement of Medical science, and the promotion of harmony and good feeling in the profession, thereby contributing to the best interests of society, and whereas the present organization of the Mass. Medical Society does not fully meet these objects, therefore

Resolved, That a change in the organization of the Mass. Medical Society is, in our opinion, deemed both wise and expedient, and that the change consist in making the basis of the State Society local, or County associations; in other words, having the State Society constituted by delegates annually chosen by the County Associations, agreeably to the principles adopted in the States of New York, Connecticut, Ohio, Vermont, and most of the states in the Union.

Dr. Jeffries, of Boston, moved, That the whole subject be indefinitely postponed.

Dr. Bowditch, of Boston, moved the following amendment: That a Committee, consisting of two individuals from each District Medical Society, and two from each County or part of a County in which no Medical District Society exists, be appointed for the purpose of considering the Preamble and Resolution offered by Dr. Childs, and of reporting at the next meeting of the Counsellors what, if any, alteration should be made in the Constitution and By-Laws of the Mass. Medical Society.

This Resolution was adopted.

Dr. Walker, of Boston, moved: That a committee of five be appointed to retire, and at once report to this meeting a list of gentlemen to constitute the Committee contemplated by the adoption of this Resolution.

Upon this Committee were appointed Drs. Bowditch, of Boston, Peirson, of Salem, Bemis, of Charlestown, and Jeffries and Lewis, of Boston.

The Committee reported the following list:

Drs. Peirson and Cox, of Essex South District Society.
Drs. Spofford and Appleton, of Essex North District Society.
Drs. Flint and Metcalf, of Worcester District Society.
Drs. Childs and Jennings, of Berkshire District Society.
Drs. Clarke and Orcutt, of Hampshire District Society.
Drs. Spooner and Yale, of Southern District Society.
Drs. Cornish and Carpenter, of Barnstable District Society.
Drs. Bridgman and Bemis, of Hampden District Society.
Drs. Dalton and Kimball, of Middlesex District Society.
Drs. Swan and Randall, of Bristol County.
Drs. Williams and Deane, of Franklin County.
Dr. Fearing, of Nantucket County.
Drs. Nichols and Warren, of Plymouth County.
Drs. Alden and Stimpson, of Norfolk County.
Drs. Smith and Adams, of Suffolk County.

This Report was accepted.

Voted: To dissolve the meeting.

ALEX. THOMAS, *Recording Secretary.*

FEBRUARY MEETING, 1848.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Society's room, in the Masonic Temple, Tremont Street, Boston, on Wednesday, the second day of February, 1848, at 11 o'clock, A. M.

The records of the last meeting of the Counsellors were read.

MAJORITY REPORT ON DR. CHILDS'S PREAMBLE AND RESOLUTION.

Dr. Peirson, of Salem, from the Committee appointed at the last meeting of the Counsellors, "to consider the Preamble and Resolutions offered by Dr. Childs, of Pittsfield," having first read different letters, which he had received from various individuals, members of the profession from different states, and from some residing in towns in the different sections of our Commonwealth, presented the following majority report:

The Committee, to which was referred the resolution offered by Dr. Childs, of Berkshire, respectfully report: That in their opinion the complaints against the Society, urged in the Preamble to that resolution, arise from imperfect apprehension of the objects to be obtained by a medical organization, such as the Massachusetts Medical Society purports to be. Its primary objects obviously are to effect a system of adequate and uniform education, and to elevate the standard of professional intercourse among practitioners. The Committee would briefly refer to the history of the Society.

When the Society was first formed, it was doubtless expected that in its limited number of seventy, would be created a scientific body, which would discuss and diffuse medical information and improvements, and take rank among the institutions of learning and science. An election into it was made honorary, and only conferred upon those who had arrived at some distinction in the profession. As the profession became more numerous, at the beginning of the present century, a different object was mainly proposed. This was to embody the whole of the regular practitioners of medicine and

surgery in the state, and by means of the authority derived from the State Legislature, to regulate the requirements of a medical education, so as to elevate the general character of the whole profession. For this purpose the limit of numbers was taken off, and every physician, after three years practice, was entitled to enrollment as a member. Finally, to do away with all the features of a close corporation of exclusive privileges, and to make the membership still more accessible, even the delay of three years has been dispensed with, and every regular physician can at once claim to be constituted a Fellow. From this cause it arises that the Society has reached its present number of more than eight hundred; a body at once becoming too large for the quiet discussion and examination of those scientific subjects usually brought before learned bodies.

To abridge in some degree the inconvenience of numbers, the Counsellors are made to consist of one eighth of the whole, and, being enabled to hold more frequent meetings, exercise a general management.

From this body have emanated, as its publications evince, a creditable display of knowledge and science. This organization of the Society has effected most beneficial improvements in the character and usefulness of the profession.

The confidence of the public has kept pace with the advancement of the profession, so that nowhere in our country, if in any other, can be pointed out a more respectable body of practitioners, or one more highly estimated by the community. If we have not made the advancement of medical science our sole object, or even our main object, we have steadily elevated our profession, by improving medical education, encouraging the harmony and honorable intercourse of its members, and have protected from the mischief of quackery, by discouraging every show of it among regular practitioners. The simple and efficient plan of the Society has accomplished all that was ever intended by its organization in 1803; while it is notorious that in other populous states, they have not attained a condition of the profession as desirable and satisfactory. It is to be regretted that from natural causes, no way to be attributed to the form of organization, the concentrated action of the Society has not been equally felt in all parts of this extended Commonwealth.

It has produced its best results in the more populous districts, where the system has been fully sustained.

The operation and benefits of good government are not local; it is equally felt wherever its power is acknowledged, at the circumference, as well as at the centre. It is the allegiance of each man's mind to justice and good order. And when it receives the cheerful support of each friend of good order and healthful restraint, like the civil government under which we live, it binds harmoniously together the remotest localities, and thinnest population.

In the County of Berkshire, in particular, the intelligent physicians of which region have hitherto had so little opportunity of associating with those in the Central and Eastern parts of the Commonwealth, this erroneous view of the objects and operations of the Society has been productive of repeated complaints. The Society has always met these complaints in the most conciliating spirit. Every request has been so far complied with, as to be deemed satisfactory, and to draw from those, who urged the complaints, the assurance that the concessions would ensure the desired harmony. It still, however, has been apparent that no compliance on the part of the Society, has induced a cordial co-operation. While the Society has been most sincerely desirous to remedy the evils complained of by the Berkshire members, it has encountered the obvious difficulty that other distant parts of the Commonwealth have equal claims to be considered by the parent body; and that whatever privileges are granted to the extreme Western district Societies, should, in justice, be extended, whenever demanded, to those which are formed upon the distant sea coast. A complaint was made in the circular of the "Berkshire District Medical Society," addressed to the "Medical profession of Massachusetts," that "the meetings, the funds, and the library of the Society are held, located, and confined to Boston." This complaint, with the additional one, that they cannot easily attend the Annual Meeting of the Society in Boston, is also urged in the petition to the Legislature of "the physicians of the County of Berkshire," as caused "by burdens, oppressions and inconveniences" too "unjust" to be borne, and made the ground of a request to the Legislature, similar to that now made to this Society. The erroneousness of these charges was clearly set

forth in the remonstrance of this Society to this petition, which failed of its object. The meetings of the Society are held in Boston, as the most conveniently accessible, if not central part of the Commonwealth; and the place of meeting may at any time be changed to Worcester, Pittsfield, Barnstable, Nantucket, or any other place in the limits of the Commonwealth, by a simple vote of the Society.

These Annual Meetings are indeed important, and may well excite the interest of those who seek the welfare of the profession. They are the occasions when the By-laws are enacted, in which the general principles to regulate the profession, the specific rules to govern the Society, and the standard of education to be attained by all, are stated and explained. It is always regretted that the distant members are not more frequently induced to be present at these Annual Meetings. More than one third of the Society are usually present, and although all may not attend every year, as many do, yet every one, who has a due interest, will find it convenient to be present at some meeting, and thus, eventually, all the members of the profession, old and young, are brought into personal contact. But it is not in these meetings, nor even in the more frequent and limited ones of the Counsellors, that an impulse is sought to be given to professional literature and science. This is the legitimate object of the district societies, so admirably adjusted by our Charter, which can be frequently assembled without the inconvenience arising from the great distance of the members from the place of meeting.

The "funds" of the Society, after paying the current expenses, including the annual dinner, provided for all who choose to attend the Annual Meetings, are distributed all over the state, in the gratuitous supply of the different publications of the Society. The District of Berkshire has not been backward in obtaining this supply. The Treasurer's and Librarian's books will prove that a share of the funds has been expended in furnishing standard works and occasional pamphlets to the Berkshire District, larger than any other portion of the Commonwealth has received, in proportion to their assessments paid into the treasury. The burden of raising these funds is not exactly equally proportioned. The remission of one third of the assessment to district societies, operates to the advantage

of the remoter districts, inasmuch as no district society has ever been formed in Suffolk County, and the assessment of the Boston members, who constitute numerically more than one fifth of the Society, goes undiminished into the treasury.

The last cause of complaint, in reference to the library, falls to the ground when it is stated that this has also been mainly distributed to the district societies, and that the County of Berkshire has had its full share, and that what remains is of too trifling a nature to be a cause of complaint.

In regard to the methods proposed to obviate the evils complained of in the preamble, the committee are satisfied that the mode in which district societies are formed with us, is preferable to that adopted in the other states named in the resolve. With us the district society is a voluntary organization, which a few physicians, in any neighbourhood, may carry into effect, within territorial limits agreed upon by themselves; in these and other states, proposed to us as models, the system is compulsory, and the limits are those assigned by the Legislatures from which their Charters are obtained. It does not therefore seem to your Committee reasonable, that the whole Society should be reorganized for the doubtful advantage to be obtained by creating primary bodies, in the form of District Societies with legislative powers. Similar bodies already exist, or may be created under the Charter already possessed by the Society, and are admirably adapted to the local convenience of Fellows in meeting for the purpose of medical discussions and the attainment of all the objects of medical association. A proof of this is found in the fact, that several district societies have been many years in successful operation in different parts of the state. Any remodeling of the present Society, would greatly tend to injure these local institutions.

The Massachusetts Medical Society, as it now exists, is an institution, upon which much labor and wise forethought have been bestowed, to adapt it to the views of a majority of Fellows, the exigences of the public, and the just expectations, always pointing to a more elevated standard. It has led the way in this progress, without waiting for the promptings of medical schools, or a jealous community. A very voluminous correspondence, still contained in

the archives of the Society, evinces the liberality with which, in 1803, it dispensed its privileges to all well-educated physicians; and the very language of its Charter shows the confidence of the Legislature, that it was capable of effecting beneficial purposes in regard to the welfare of the Society. It is regarded by physicians in other states and other countries, as a most desirable model of medical organization. It is generally acknowledged to have effected its object of elevating and uniting the profession, more perfectly than it has been done elsewhere. Whenever it has been attacked in a public way, it has always shown, before an intelligent Legislature, a strong and satisfactory claim to the confidence of the public; and it has always obtained from this Legislature, those reasonable requests, which from time to time it has made. Though not combined solely for scientific or literary purposes, it is always ready to disseminate gratuitous information on the medical topics which agitate the minds of anxious communities.

The reports upon vaccination, petechial fever, and cholera, prepared its Fellows for a better knowledge of their duties, than was elsewhere so generally diffused. The dissertations upon articles of the materia medica, and upon modes of practice newly introduced, were eminently serviceable and timely. Experience has shown that the present organization of the Society has readily furnished these results, and no disastrous failure has yet lessened its numbers, or diminished its usefulness. It appears to your Committee unwise to desert a system which has worked well for nearly half a century, and adopt one which is far less general, is inconsistent with our republican institutions, and combines less of the general interests of the whole profession. The true interests of the whole profession emphatically call for the effort to maintain, strengthen, and improve, as occasion may require, our present constitution. If any parts of the Commonwealth, from position or any other cause, fail to receive their proportion of the Society's beneficial influence, their condition will not be improved by enervating the vigor of the Society by unreasonable complaints, and impeding its movements by chimerical innovations. Their aspirations for something better should lead them to the adoption of plans not involving the entire Society, and to the formation of institutions of less humble pretensions. With these

views your Committee recommend that the subject be indefinitely postponed.

A. L. Peirson, *Salem*,	Aaron Cornish, *Falmouth*,
Benjamin Cox, "	John C. Dalton, *Lowell*,
Ebenezer Alden, *Randolph*,	Paul Spooner, *N. Bedford*,
Edward Flint, *Leicester*,	Jeremy Stimson, *Dedham*,
J. Geo. Metcalf, *Mendon*,	Z. B. Adams, *Boston*,
Henry Orcutt, *W. Hampton*,	Jeremiah Spofford, *Bradford*,
Winslow Warren, *Plymouth*,	Atherton Clark, *E. Hampton*,
P. L. Nichols, *Kingston*,	John Appleton, *W. Newbury*,
Caleb Evan, *Easton*,	Leroy M. Yale, *Tisbury*,
Elisha P. Fearing, *Nantucket*,	M. R. Randall, *Rehoboth*.

MINORITY REPORT ON DR. CHILDS'S PREAMBLE AND RESOLUTION.

Dr. Smith, of Boston, from the same Committee, presented the following minority report.

The Committee to which was referred the following Preamble and Resolution, viz:—" Whereas the great object of medical association is the advancement of medical science, and the promotion of harmony and good feeling in the profession, thereby contributing to the best interests of society, and whereas the present organization of the Massachusetts Medical Society does not fully meet these important objects, therefore resolved: That a change in the organization of the Massachusetts Medical Society, is in our opinion deemed both wise and expedient, and that the change consist in making the basis of the State Society local or County Associations; in other words, having the State Society constituted by delegates annually chosen by the County Associations, agreeably to the principle adopted in the States of Connecticut, New York, Vermont, Ohio, and in most of the states of the Union," have met and discussed the subject, and beg leave to submit the following report.

The Massachusetts Medical Society was incorporated in 1781, and doubtless was adapted to the then existing state of the profession, and to the wants of the state. At that period, the population of the state was relatively small; well educated physicians few in number, and widely scattered over the state. Legal restrictions

were imposed upon the practice of medicine, and it was necessary to establish tribunals for deciding the qualifications of practitioners. To the Massachusetts Medical Society was intrusted the exclusive power of regulating the practice of medicine, deemed by government indispensable to the best interests of the people at that period. At the time of the incorporation of the Massachusetts Medical Society, and for many years after, medical schools were hardly known in the United States. There was no other board of examiners to test the qualifications of medical students to enter the practice of their profession, but such as were authorized and constituted by the Massachusetts Medical Society.

It is most obvious, from an examination of the acts of the Legislature, passed at different times since the establishing of the Massachusetts Medical Society, that the principal object and design of the Society and of the Legislature, were not for the benefit of Medical Association, but to guard the profession and the community against the introduction to the practice of medicine of improper persons, unqualified for the discharge of its responsible duties; and in 1818, an act passed the Legislature depriving all practitioners of medicine who were not licensed by the Society, or who had no M. D., of the benefit of law, for the recovery of any debt or fee accruing for his professional services; and in 1819, this disability was extended to all physicians but graduates of Harvard University, and Licentiates of the Massachusetts Medical Society. The repeated acts in addition to acts relating to the incorporation of the Massachusetts Medical Society, with a view of meeting the demands of the profession, and of the Commonwealth, together with numerous by-laws and orders, ever changing and ever unintelligible, are evidences of the defects in the organization, which no amendments have as yet been able to cure. The original object and design of the Society, as already stated, being chiefly for the purpose of deciding on the qualifications of members of the profession, being suspended to a great extent by the abrogation of all special laws regulating the practice of medicine, its utility is greatly diminished, if indeed not wholly useless as regards the present wants of the profession and the community.

The government of the state relinquishing all direct control over the practice of medicine, and leaving it, as the other professions are

left, to its own management, it is most obvious that other regulations than those now existing are most imperatively demanded: in other words, the members of the profession, themselves, have devolved upon them the responsibility of regulating, sustaining, and maturing the regular practice of medicine. Nor do we view this change unpropitious to the cause of medical science, provided we can have an organization adapted to the existing state of things.

In the Remonstrance of the Massachusetts Medical Society against the Berkshire Petitioners, the following language is used: "The Society has at all times been eminently useful in promoting friendly intercourse and honorable conduct among the members of the profession, in upholding a proper standard of medical education, and in protecting the community from the encroachments of ignorant and incompetent practitioners." We readily concede that the Society was once eminently useful in protecting the community from the encroachments of ignorant pretenders, for that was the main, of not the only reason why the Society was first brought into existence; and it must be obvious to all, that circumstances have greatly changed. Our legislative tables have been completely turned, and will probably ever remain so. A license, or medical degree, is no longer requisite for the practice of medicine in Massachusetts, and no laws of the State, or of the Massachusetts Medical Society, are of any avail in guarding the entrance into the profession, or regulating the conduct of its members. We have to look to the regular practitioners themselves for such action as will protect and advance their own best interests. On what plan can this important object be best accomplished?

This is the question to be decided, and this is the question which ought to enlist the feeling and the talent of all who duly appreciate the interests which it involves. Associated action! Union and concert of action by all the regular practitioners! is the answer. The power and the influence of such action is fully adequate to the exigencies of the case. Besides the power of medical association, which would give energy to all their regulations, another and greater benefit would result: that of mutual improvement, and friendly feeling among the members of the profession. Under the regimen of the Massachusetts Medical Society, is there any prospect of obtaining these desirable and all-important objects? Look

at the facts in the case. We say, less than one half of the regular practitioners of medicine now nominally constitute the Society. In Berkshire there are one hundred; less than twenty belong to the Society. In Hampden one hundred and thirty (about); and of this number only about twenty or twenty-five are members of the State Society. In some other counties there is doubtless a majority, while in others not one half of the regular physicians are members. The number of Fellows of the Massachusetts Medical Society is not far from seven hundred, which is not probably one half of the physicians in the State. Two important objects are sought to be obtained by the proposed change in the organization of the Massachusetts Medical Society. 1st. A State Society, which shall represent the interests, the talents, and the views of all the Faculty in the Commonwealth, and devise such general plans for the benefit of the whole profession in the State, as circumstances require; and thus present to the other States, and to the Union, a dignified example of professional wisdom and harmony. 2nd. The organization of County Associations for the express purpose of personal improvement in the science and practice of medicine; also for the adoption of such regulations as will best promote the interests of the profession.

In addition to county Associations, with all their concomitant advantages, already noticed, from which delegates shall be chosen to constitute the State Society, an acquaintance would be cultivated between the members of the faculty at home, and throughout the State, highly conducive to the advancement of medical science and the harmony and best good of all.

Under the present organization, little can be expected from beneficial regulations, and nothing, really, of the advantages of medical associations.

The few who more nominally belong to the State Society, notwithstanding the almost fruitless efforts that have been made to induce physicians generally to join the Society, is conclusive evidence of the defective principles on which the Massachusetts Medical Society is based, and ought to excite an interest in all the friends of medical science for some improved system.

Resolved, That this Committee recommend to the Board of Counsellors of the Massachusetts Medical Society to present, at the

next annual meeting of the State Society, the subject of an amendment of the charter of the Massachusetts Medical Society, advising the incorporation of the principle of basing the State Society on a delegation of members, to be chosen annually by the several county Medical Associations.

H. H. Childs, *Pittsfield*,
James Deane, *Greenfield*,
Wm. Bridgman, *Springfield*,
by Wm. Bridgman, Attorney, *Cabotville*,
David Bemis, *Cabotville*,
Steph. W. Williams, *Deerfield*,
Selden Jennings, *Richmond*,
Gilman Kimball, *Lowell*,
J. V. C. Smith, *Boston*.

On motion of Dr. Smith, of Boston, two letters, severally, from Dr. S. W. Williams, of Deerfield, and Dr. J. Deane, of Greenfield, enumerating in full their reasons for having signed the minority report, were read.

Dr. Jeffries, of Boston, moved that the report of the majority of the Committee be accepted.

Dr. Adams, of Boston, moved to amend the motion by adding thereto, "and that the number of Counsellors, voting yea or nay thereon, and the whole number present, be recorded.'

The motion thus amended, was adopted. Twenty-five voted in the affirmative, three in the negative; forty-two Counsellors being present.

A question having arisen, whether the acceptance of the report implied an adoption of the recommendation appended thereto, a motion was made that this recommendation be adopted, and was decided in the affirmative.

On motion of Dr. Jeffries it was voted, that the report of the minority of the Committee be received, recorded, and printed in the next annual volume of the Society's Transactions.

The Committee, to which at the last meeting of the Counsellors was referred the subject: "how many delegates shall the Society send to the next meeting of the American Medical Association to be holden in Baltimore, May, 1848, and who shall constitute that list of delegates?" reported, That the Society are authorized by the rules of the American Medical Association to send fifty; and recommend that the following gentlemen compose that list.

For Essex, South District. Drs. A. L. Peirson, Geo. Choate, Reynolds, of Gloucester, and Wildes, of Ipswich.

For Essex, North District. Drs. Jeremiah Spofford and Rufus Longley.

For Worcester District. Drs. J. Green, E. Flint, C. W. Wilder, S. Batchelder, S. C. Hartwell, Osgood, of Templeton, and Sargent, of Worcester.

For Berkshire District. Drs. Royal Fowler, and Robert Worthington.

For Hampshire District. Drs. Benjamin Barrett, Stephen W. Williams.

For Southern District Medical Society. Drs. Spooner and Bartlett, of New Bedford, and Paul Nichols, of Kingston.

For Barnstable District. Drs. Cornish, of Falmouth, and E. W. Carpenter, of Chatham.

For Hampden District. Drs. William Bridgman, and James W. Smith.

For Middlesex District Society. Drs. J. C. Dalton, N. Cutter, E. Huntington, and J. Bartlett, of Concord.

For Middlesex County. Drs. J. Wellington, of West Cambridge; H. Adams, of Waltham; Simon Whitney, of Framingham; A. B. Adams, of Bedford; Joshua Green, of Groton; J. O. Green, of Lowell; Hiram Hosmer, of Watertown, and Abraham R. Thompson, of Charlestown.

For Norfolk County. Drs. Jeremy Stimpson, Ebenezer Alden, Henry Bartlett, and Edward Jarvis.

For Suffolk County. Drs. Zabdiel B. Adams, John Jeffries, William J. Walker, Winslow Lewis, J. V. C. Smith, D. H. Storer, Alexander Thomas, Ezra Palmer, Marshall S. Perry, Martin Gay, Henry G. Clark, Henry I. Bowditch, Henry Dyer, and Henry Bryant.

For Nantucket. Dr. Elisha Fearing.

Signed { George C. Shattuck, Josiah Bartlett, John O. Green.

Report accepted.

On motion of Dr. Peirson, of Salem, it was

Resolved, That a Committee be appointed from the Fellows of the Society, to examine the Charter and By-Laws of the Society, and report at the next meeting of the Counsellors, if any and what alterations are necessary therein.

The following gentlemen were appointed to this Committee.

Dr. J. Ware, Boston; Dr. A. L. Peirson, Salem; Dr. W. Lewis, Boston; Dr. J. Jeffries, Boston; Dr. J. V. C. Smith, Boston; Dr. H. H. Childs, Pittsfield; Dr. John C. Dalton, Lowell.

It was voted, that when this meeting shall adjourn, it shall be to the Tuesday next preceding the last Wednesday in May next.

The Corresponding Secretary reported the names of the following gentlemen, who had become Fellows of the Society, since the last meeting of the Counsellors, by signing the By-Laws.

Shelometh S. Whipple, M. D., Boston; John B. Wadleigh, M. D., Haverhill; Daniel S. Allen, M. D., Saugus; L. B. Coles, M. D., Boston.

The Publishing Committee, to which had been referred the communication from certain members of the Connecticut Medical Society, respecting their desire to participate in the advantages of our annual medical volume, reported favorably to their application. And thereupon it was

Voted, That the Corresponding Secretary communicate with them by letter.

A letter was received from Messrs. Wood, of New York, offering upon certain terms to supply the Society with the British and Foreign Medical Review. Also a letter from Dr. Green, of Falmouth, upon Medical Statistics, both of which were referred to the Committee on Publications.

A letter was received from Dr. Luther V. Bell, of Somerville, acknowledging the honor done to him, and consenting to deliver the address to the Society at its next annual meeting.

Voted, That this meeting be now adjourned.

ALEXANDER THOMAS, *Recording Secretary.*

MAY 30, 1848.

An adjourned meeting of the Counsellors of the Society was held at the Tremont Temple, Tremont street, Boston, on Tuesday, the 30th day of May, A.D. 1848, at 10 o'clock, A.M.

The records of the last meeting were read. Dr. John Ware, of Boston, Chairman of the Committee appointed at the last meeting of the Counsellors to ascertain if any and what alterations are necessary in the Charter and By-Laws of the Society, presented the following report: —

The Committee appointed by the Counsellors to examine the Charter and By-Laws of the Massachusetts Medical Society, and to consider whether any alterations are necessary therein, have the honor to offer the following report:

In attending to this subject, the Committee have had especially in view the opinion held, and often expressed by many members of the Society, that, as at present constituted, it does not accomplish all the purposes of which it is capable; and, particularly, that in many of the remote parts of the State, it fails to secure the favor of the profession, and consequently that only a limited proportion of regularly educated physicians find it for their interest to become its members.

The Committee, in thus taking into consideration the operation of the Society, are satisfied that its greatest influence has been exerted and its best effects produced, in and around the place which is the centre of its organization. Those who are able to attend its meetings, and take part in the management of its affairs, are of course most interested in its prosperity, and conform most readily to its requirements. Those, on the contrary, who reside at such a distance as makes their attendance difficult and infrequent — or impossible — feel naturally a less lively concern in it — they hardly perceive their actual connection with it; — they consider themselves called upon to obey laws which they have no voice in making, and to contribute to the expenses of an organization in which they find it difficult to take part. As a consequence of this, regularly educated persons who enter the profession under these circumstances have not sufficient inducements offered to them to become members.

They perceive that the Society is little known to those among whom they are thrown, and has but little influence over them; that it is not necessary to their reputable standing among physicians, nor to their success with the community, that they should be connected with it.

This inequality in the operation of the Society is only incompletely met by the Constitution of the Board of Counsellors, although they are intended to represent the Fellows in all parts of the Commonwealth. The same circumstance of distance which prevents the full attendance of Fellows at the annual meeting, has also an effect on the meetings of the Counsellors. Besides this, their election by the Society at large, amidst the press and hurry of business at their annual meeting, when many of the members are called upon to vote without opportunity for previous consultation, sometimes even without personal acquaintance with each other and with the candidates; prevents that deliberate consideration which is necessary to the selection of persons suitable for the office, and of those whose leisure will permit them to attend to its duties. These circumstances have often occupied the attention of the members with the view of devising means for obviating their unfavorable influence; and in the Convention of 1839, a provision was made for the selection of lists of candidates by the Districts, which, although a decided improvement upon the former method, has still proved only a partial remedy for the inequality which is felt to exist.

The result of this has almost necessarily been that the Counsellors and Officers have been virtually chosen, and the affairs of the Society chiefly managed by those Fellows who reside within a certain circuit around Boston. The Committee fully believe, that the powers which have thus almost of necessity fallen into their hands, have been fairly exercised, and with a sincere purpose of promoting the best interests of the profession; yet they are nevertheless of opinion, could means be devised by which the relation which members bear to the Society should be rendered more uniform and equal, that its salutary influence would be more extensively diffused over the Commonwealth, and an interest in its character and prosperity become the common feeling of the whole profession.

With the hope of promoting so desirable a result, the Committee

submit, for the consideration of the Counsellors, a plan for certain modifications of the organization of the Society and for some alterations in the arrangements for its meetings and its publications, which are embodied in the following articles.

1. The Counsellors shall be chosen by the Fellows of the Society in their several Districts; if practicable, at least one week before the annual meeting — the choice to be made by the District Society where one exists; and where such a Society does not exist, by a Convention of the Fellows of the District, called for this special purpose, in such manner as may be hereafter provided. If any District fail to choose Counsellors by one of these modes, then the whole body of the Counsellors, at their annual meeting, shall fill the vacancy.

2. The District Societies shall have the power of admitting persons to Fellowship in their several Districts, who shall thus become Fellows of the Society at large, and shall receive from it their certificate of admission; but a common standard of qualification for admission shall be established, to which all the Districts shall conform, and all admissions shall be subject to the revisal of the Board of Counsellors.

3. The annual meeting of the Counsellors shall be held on the day preceding that of the annual meeting of the Society. At this meeting they shall choose the officers and transact the business of the Society, as nearly as practicable, as is done under the present organization.

4. The annual meeting of the Society shall be held in such of the principal towns or cities of the Commonwealth, as the Counsellors shall, from year to year, determine. They shall also appoint, annually, a presiding officer for the meeting and the dinner; and a committee, who, with the presiding officer, shall have charge of all the necessary arrangements for the occasion.

5. There may be annually prepared, under the direction of the Counsellors, and at the expense of the Society, a Retrospect of the Medical Literature and Science of the preceding year, having reference especially to discoveries and improvements of practical value. This Retrospect shall be published in the place of, or in addition to, the present annual volume, at the discretion of the Counsellors.

6. In order to ensure a full and fair expression of opinion, on the part of the Society, concerning these propositions, a copy of this report shall be transmitted to each Fellow, with a request that he return to the Secretary his assent to, or dissent from, its several articles, in the form of a distinct affirmative or negative with regard to each, within some definite period. Should it appear from the returns thus received, that the alterations in question, or any of them, receive the approbation of a majority of the Fellows, they shall be considered as adopted, and the Counsellors shall take such measures as are necessary to carry them into effect.

In concluding their Report, the Committee beg leave to add a few remarks to those already made, concerning the expediency of these changes, especially that which relates to the place of holding the annual meeting.

It is not to be anticipated that the actual number of Fellows attending the annual meeting in any single year, will be as great as upon the present plan; still, it is believed that in any given succession of years, a greater proportion of them will have it in their power to be sometimes present. Many who can now *always* attend without inconvenience, will be occasionally deprived of this privilege; but on the other hand, very many who now *seldom*, and perhaps *never* have it in their power to attend, will have the opportunity presented to them as frequently as their hitherto more favored brethren.

The arrangement now suggested, the Committee believe, will be more advantageous to the Society than to relinquish entirely the meeting of the Fellows at large, and to limit the organization of the general body of physicians of the State, to the representative system. In a larger community this might be necessary, but in so small a territory and with so dense a population as ours, the union of the two systems does not seem to be impracticable, and the general assembly of the Fellows at their annual festival, seems always to have been singularly beneficial in promoting good feelings, and a right professional relationship among those who come together.

It is also believed that these meetings, conducted on this plan, may be made the means of bringing this Society more under the notice and knowledge of the community, and of increasing its

respectability and usefulness, by making mankind acquainted with its just claims, and consequently also with the true character of the regular members of the profession. In a large city, meetings of this description are matters of common occurrence; they excite no attention and exert little influence. But in other places, such a meeting as ours would be an occurrence of some importance, would excite interest, and this not only in the place itself, but to some extent also in the surrounding district.

The Committee would also suggest whether it is not within the purposes of the establishment of the Society, to take some interest in promoting medical education and raising the standard of professional acquirement in the Commonwealth. This subject is especially worthy of consideration at the present time, when the attention of the whole body of the profession has been called to it by their delegates at the meeting of the American Medical Association. It is believed that a decided impulse will be given to medical education, and that its standard will be gradually elevated, as the result of the labors of this body; and it is due to the character of our community, never behind any other in enterprises of this description, that we should do our full share in so good a work.

JOHN WARE,
For the Committee.

On motion of Dr. Bowditch, it was

Voted, That the report of the Committee be accepted, and that the articles appended thereto be separately considered.

The first article having been read, it was moved and seconded, that it be accepted; which motion, after much debate, was adopted.

The second article having been read, was adopted.

The third article, after having been read, was adopted.

The fourth article having been read, was, on motion, adopted.

The fifth article, after having been read and amended by substituting the word "may" for the word "shall," was adopted.

The sixth article was read, and, on motion, adopted.

The report, thus in full accepted, was referred to the Society for action thereon at their next annual meeting.

It was, on motion of Dr. Peirson, of Salem,

Voted, That this report be at once printed, and distributed to the Society at its next annual meeting.

The execution of this vote was entrusted to the Committee on Publications, to which, on motion of Dr. John B. S. Jackson, of Boston, Dr. John Ware was added.

The following communication was presented by Dr. Bowditch, and referred to the Society at its next annual meeting, viz.: "That the Massachusetts Medical Society approve and will encourage the plan of a sanitary survey of the State, which was proposed by the American Statistical Association to the Legislature of this Commonwealth.

"That this Society will petition the next Legislature of this State to cause such a survey to be made, and thus ascertain and publish the sanitary resources and influences of the Commonwealth. And that such a petition and memorial shall be prepared and signed by the President and Secretary, and presented to the next General Court."

"That this Society requests and urges each one of its members to use his influence with the gentlemen who may be chosen to represent his town or city, and his county in the next Legislature, to procure the passage of a law establishing such a sanitary survey."

Voted, To dissolve the meeting.

ALEXANDER THOMAS, *Rec. Sec.*

JUNE MEETING, 1848.

A stated meeting of the Counsellors of the Massachusetts Medical Society was held at the Masonic Temple, Tremont Street, on Monday, June 1, 1848.

The records of the last meeting of the Counsellors and of the last annual meeting of the Society were read.

Voted, To proceed to the choice of officers. Drs. Dalton, of Lowell, Smith, of Boston, and Cutter, of Pepperell, were appointed of committee to collect, assort, and count the votes.

Dr. Howe, the President of the Society, having declined a re-election, it was voted, on motion of Dr. Peirson, of Salem, "that

the sincere thanks of the Society be tendered to Dr. Howe for the kind and obliging, as well as efficient and impartial manner in which he has presided during the past years."

Dr. John Ware, of Cambridge, was elected President. A letter having been received from Dr. Edward Flint, declining a re-election as Vice-President, Dr. Joseph Stone, of Hardwick, was elected Vice-President.

Dr. J. B. S. Jackson having declined a re-election, Dr. D. H. Storer was elected Corresponding Secretary.

Dr. Alexander Thomas having declined a re-election, Dr. C. G. Putnam was elected Recording Secretary.

Dr. Z. B. Adams having declined a re-election, Dr. A. A. Gould was elected Treasurer.

Dr. M. Gay was elected Librarian.

Drs. O. W. Holmes, John Ware, and Morrill Wyman were elected Publishing Committee.

Drs. George W. Otis, W. Lewis, and A. A. Gould were elected Committee on Resignations.

The following gentlemen were elected Censors for the first Medical District, and for the Society at large, viz.: Drs. J. D. Fisher, Geo. W. Otis, Alexander Thomas, J. B. S. Jackson, and John Flint. Dr. Winslow Lewis, Jr., declined a re-election.

Censors for the second Medical District, Drs. B. F. Heywood, Benjamin Pond, Joseph Sargent, J. G. Metcalf, Wm. Workman.

For the third Medical District, Drs. David Bemis, J. Abbott, E. G. Ufford, S. B. Woodward, James Deane.

For the fourth Medical District, Drs. Henry H. Childs, Asa G. Welch, Robert Worthington, Nathan S. Babbitt, Corridon Guiteau.

For the fifth Medical District, Drs. Alexander Read, Lyman Bartlett, Thomas Wilbur, John Perkins, Perez F. Doggett.

For the sixth Medical District, Drs. Aaron Cornish, E. W. Carpenter, Thomas P. Jackson, George Atwood, Jonathan Leonard.

The report of the Auditors of the Treasurer's accounts was read and accepted.

The report of the Committee on the Library was read and accepted.

The report of the Committee on Resignation was read and accepted.

The Censors report was read and accepted.

The Corresponding Secretary reported the following names of gentlemen who had become Fellows of the Society since the last stated meeting of the Counsellors, viz:

Eugene O'Neill, Boston; Samuel A. Lord, South Danvers; Edward B. Moore, Boston; Lemuel Dyckerman, Medfield; Gustavus Taylor, Boston; Oscar Burbank, Lowell; Charles Howe, Stoughton; Franklin A. Cady, Pittsfield; William Williams, Salem; John E. Dalton, Jr., Boston; Francis Minot, Boston; Luther Parks, Jr., Boston; Howland Holmes, West Cambridge; George H. Gay, Boston; Joseph H. Streeter, Roxbury; William G. Wheeler, Chelsea; Nathaniel B. Danforth, Chatham; Moses Rogers, Dennis; Charles Haddock, Beverly; Benjamin Heywood, Worcester; Benoni Carpenter, Pawtucket; Charles E. Parker, Pepperell; Jabez B. Upham, Boston; Charles A. Davis, Chelsea; Henry M. Hooke, Lowell; Benjamin T. Gilman, Boston; Luther Jones, South Yarmouth; William B. Gouch, South Dennis; Enos Hoyt, Framingham; David T. Hutchins, Watertown; Otis E. Hunt, Weston; Jonathan T. Curtis, Lawrence; Tappan E. Francis, Roxbury.

The committee appointed to nominate one Fellow from each county to form a Committee of reception for the American Medical Association, reported the following names.

From Suffolk, Dr. James Jackson; Barnstable, Dr. Aaron Cornish; Dukes, Dr. Leroy Yale; Essex, Dr. Andrew Nichols; Bristol, Dr. Paul Spooner; Berkshire, Dr. Selden Jennings; Franklin, Dr. S. W. Williams; Hampden, Dr. James W. Smith; Hampshire, Dr. Edward G. Ufford; Middlesex, Dr. Elisha Huntington; Nantucket, Dr. E. P. Fearing; Norfolk, Dr. Jeremy Stimson; Plymouth, Dr. Paul L. Nichols; Worcester, Dr. Stephen Batchelder.

A proposition for a sanitary survey having been presented, it was

Voted, That the President of the Society, together with Dr.

Jarvis, of Dorchester, and Dr. Dalton, of Lowell, be a committee to prepare a petition in relation to the subject, and present the same to the Legislature.

Voted, That the motion (made in February last) to defray the individual expenses of the Committee on the Preamble and Resolutions in regard to amendment of the Charter of the Society, be referred to a committee, to report to the next meeting of the Counsellors.

Voted, That the committee consist of three, — the Treasurer of the Society, Drs. Alden and Thomas.

Voted, That a committee be appointed to arrange the By-Laws, in conformity with the new organization, if adopted, with authority to apply to the Legislature.

Voted, That Drs. Jeffries, Peirson, Childs, Williams, of Deerfield, and Hooper, of Fall River, constitute the Committee.

Voted, "That this Committee be enlarged by the addition of the Treasurer and Dr. Z. B. Adams."

It was moved, by Dr. Z. B. Adams, that a committee be appointed to consider the expediency of so altering the By-Laws that the annual assessment shall be only one dollar, and that all who desire a copy of the "book" shall give previous notice to the Recording Secretary, and shall be charged the cost thereof; and that the income of the permanent fund shall be applied to the payment of rents and other current expenses. It was further moved, that the age should be sixty-five before permission be given to resign. Whereupon it was

Voted, That the subject be referred to the Committee on "Alterations in the Charter."

Dr. Josiah Bartlett, of Concord, was chosen to deliver the next annual address.

Dr. Lewis L. Miller, of Providence, Rhode Island, was elected an Honorary member of the Society.

Voted, That Westford and Stowe be added to the towns constituting the Middlesex District.

Voted, To refer the letter of the N. H. Medical Society to the Committee on Publications.

Voted, That the Southern District Medical Society be authorized to hold their meetings either at New Bedford or Fall River.

The following letter was read in regard to the publications of the Sydenham Society.

BOSTON, MAY 30TH, 1848.

To the President of the Massachusetts Medical Society.

SIR,—I beg leave to address you for the purpose of soliciting the attention of the Fellows to the "*Sydenham Society*," instituted in London, England, A.D. 1843. The prospectus gives so clear an account of the nature and objects of the Society, that I here transcribe it at length:

"The Sydenham Society has been founded for the purpose of meeting certain deficiencies in the diffusion of medical literature, which are not likely to be supplied by the efforts of individuals. It will carry this object into effect by distributing among its members—

1st. Reprints of Standard English Medical Works, which are rare and expensive.

2d. Miscellaneous Selections from the Ancient and from the Earlier Modern Authors, reprinted or translated.

3d. Digests of the most Important Matters contained in Old and Voluminous Authors, British and Foreign, with occasional Biographical and Bibliographical Notices.

4th. Translations of the Greek and Latin Medical Authors, and of Works in the Arabic and other Eastern Languages, accompanied, when it is thought desirable, by the Original Text.

5th. Translations of Recent Foreign Works of merit.

6th. Original Works of great merit, which might be very valuable as books of reference, but which would not otherwise be published, from not being likely to have a remunerating sale,—such as Classified Bibliographies, and Alphabetical Indexes to Periodical Publications, and other valuable Voluminous Works.

The Society will consist of an unlimited number of members.

The subscription constituting a member, is one guinea annually, for which he will be entitled to a copy of every work printed by the Society, during the time of his subscription.

The subscriptions are to be paid in advance; and no member is responsible beyond the amount of his subscription.

All Works published by the Society will be selected by the Council; and, previous to publication, will be subjected to their supervision.

The Works of the Society will be printed for members only; on a uniform plan, and with good legible type.

The Society is under the direction of a Council of twenty-four members, elected at the annual general meeting from the subscribers at large; and of this number eighteen only will be re-eligible for the following year.

The President and Vice-President will also be selected annually.

As the expense of management will be very small, nearly the whole of the funds subscribed will be devoted to the publications; and as the proportion-

ate cost of producing books decreases as the number of copies increases, it is anticipated that, when the Society is fully organized, the annual supply of works to members will be considerable.

The great success that has attended other societies, established on similar principles, and with like objects,—as the CAMDEN, the PARKER, PIERCY, &c., leaves no room for doubt as to the eventual prosperity of the Sydenham Society. It would, indeed, be strange if medicine, which boasts of a literature more extensive than that of any other art or science, and of cultivators as numerous, zealous, and learned as any other department of human knowledge, should fail in attaining an end which has been so speedily and so fully accomplished by the societies referred to, and by others embracing even less comprehensive objects."

The Society now consists of about three thousand members,—the annual subscription in England being one guinea, paid in advance, the equivalent to which in American subscribers is *five* dollars, with the additional expenses of transmission and duty.

The officers and Council of the Sydenham Society are from among the most distinguished members of the profession in Great Britain, who have engaged in this enterprise for the sole object of benefitting the profession. Five years of experience in this undertaking gives us increased confidence in their ability, zeal, and faithfulness for the execution of their work.

It seems unnecessary to say any thing in commendation of the objects of the Society. By what it has already accomplished it fully commends itself, and it is only necessary, we judge, to make it known to the profession in order to receive their approbation. I will, however, add, that the members receive for their annual subscription, three or more volumes of standard works, of the utmost intrinsic value, and executed in the most beautiful style, and which would be sold, were they to be had in the shops, at more than double the cost to the members of the Society.

It is to be hoped that the general circulation of the works of the Sydenham Society, may create a relish for a higher and healthier medical literature than generally prevails among the members of our profession; and become a substitute for much of the periodical trash which constitutes the habitual reading of a large portion of medical men, than which nothing can be imagined less likely to advance sound medical knowledge, and improve good professional taste.

I take the liberty also of placing upon your table some of the volumes already issued, for the inspection of the Fellows of the Society.

I have the honor to be,
with sentiments of consideration,
Your obedient Servant,
RICHARD H. SALTER,
Hon. Local Sec.

During the five years that the Society has been established, the following works have been issued to the Members:

FOR THE FIRST YEAR, 1843-4.

HECKER'S *Epidemics of the Middle Ages*, one vol. 8vo, pp. 380.

LOUIS *on Phthisis*, one vol. 8vo, pp. 571.
TH. SYDENHAM *Opera Omnia*, one vol. 8vo, pp. 668.

FOR THE SECOND YEAR, 1844–5.

The Seven Books of PAULUS ÆGINETA, vol. I, pp. 683.
Observations on ANEURISM, one vol, 8vo, pp. 524.
SIMON'S *Animal Chemistry*, vol. I, 8vo, pp. 360, plate.

FOR THE THIRD YEAR, 1845–6.

SIMON'S *Animal Chemistry*, vol. II, 8vo, pp. 560, 2 plates.
PAULUS ÆGINETA, vol. II, 8vo, pp. 511.
HASSE'S *Pathology*, 8vo, pp. 400.

FOR THE FOURTH YEAR, 1846–7.

The Works of W. HEWSON, complete in one vol. 8vo, pp. 360-56, portrait, and 8 plates.
DUPUYTREN'S *Lectures on Diseases and Injuries of the Bones*, one vol. 8vo, pp. 459.
The Works of W. HARVEY, M. D., complete in one vol. 8vo, pp. 624–98.

FOR THE FIFTH YEAR, 1847–8.

A Treatise on *Medical Psychology*, by Dr. FEUCHTERSLEBEN, constituting a Systematic Introduction to the Study and Treatment of Mental Diseases.
A Volume of Memoirs on important *Surgical Diseases of the Head and Neck*, translated from the Memoirs of the French Academy of Surgery.
A Translation of SCHWANN and SCHLEIDEN'S Treatises on the *Intimate Structure of Animals and Vegetables*, containing the Original Exposition of the Cell-theory.
PAULUS ÆGINETA, vol. III, 8vo.

Drs. J. Homans and C. G. Putnam were nominated a Committee to transfer the funds of the Society, accounts, &c. from the late to the present Treasurer.

C. G. PUTNAM, *Rec. Sec.*

Officers of the Massachusetts Medical Society.

ELECTED JUNE 1, 1848.

JOHN WARE, *President.*
JOSEPH STONE, *Vice President.*
D. H. STORER, *Corresponding Secretary.*
C. G. PUTNAM, *Recording Secretary.*
AUGUSTUS A. GOULD, *Treasurer.*
MARTIN GAY, *Librarian.*

Censors. *For the Society at large, and the first Medical District*, George W. Otis, J. D. Fisher, Alexander Thomas, J. B. S. Jackson, John Flint.

For the second District, B. F. Heywood, Benjamin Pond, Joseph Sargent, J. G. Metcalf, William Workman.

For the third District, David Bemis, Jehiel Abbot, E. G. Ufford, S. B. Woodward, James Deane.

For the fourth District, H. H. Childs, Asa G. Welch, Robert Worthington, N. S. Babbitt, Corridon Guiteau.

For the fifth District, Alexander Read, Lyman Bartlett, Thos. Wilbur, John Perkins, Perez H. Doggett.

For the sixth District, Aaron Cornish, E. W. Carpenter, Thos. P. Jackson, George Atwood, J. Leonard.

Committee on Publications. O. W. Holmes, John Ware, Morrill Wyman.

Committee on Resignations. George W. Otis, Winslow Lewis, Jr., A. A. Gould.

Dr. Josiah Bartlett, of Concord, was chosen to deliver the next Annual Address.

Officers of District Medical Societies.

ELECTED, 1848.

Barnstable District Society. John Harpur, *President.* George Atwood, *Vice President.* Alexander Poole, *Secretary.* E. W. Carpenter, *Treasurer* and *Librarian.*

Berkshire. No return.

Essex North District Society. Benjamin Atkinson, *President.* David Mighill, *Vice President.* Martin Root, *Secretary.* Jeremiah Spofford, *Treasurer* and *Librarian.*

Essex South District Society. A. L. Peirson, *President.* George Choate, *Vice President.* Joseph Farnum, *Treasurer.* E. B. Peirson, *Librarian.* William Mack, *Secretary.*

Hampden District Society. Silas P. Wright, *President.* G.

B. Bridgman, *Vice President.* Thomas L. Chapman, *Secretary, Treasurer,* and *Librarian.*

Hampshire District Society. E. G. Ufford, *President.* Harvey Orcutt, *Vice President.* J. W. Smith, *Secretary.* C. A. Hall, *Treasurer.* James Thompson, *Librarian.*

Middlesex District Society. Elisha Huntington, *President.* J. C. Dalton, *Vice President.* J. P. Jewett, *Treasurer.* Joel Spalding, *Librarian,* Drs. Wells, Allen, and Morse, *Standing Committee.*

Southern District Society. Andrew Mackie, *President.* Foster Hooper, *Vice President.* Joseph Haskell, 2*d Vice President.* Samuel Sawyer, *Secretary.* William A. Gordon, *Treasurer* and *Librarian.*

Worcester District Society. William Workman, *President.* J. G. Metcalf, *Vice President.* James W. Robbins, *Secretary.* Benjamin Heywood, *Treasurer* and *Librarian.*

Committee on the Waldo Legacy. John Green, Edward Flint, William Workman.